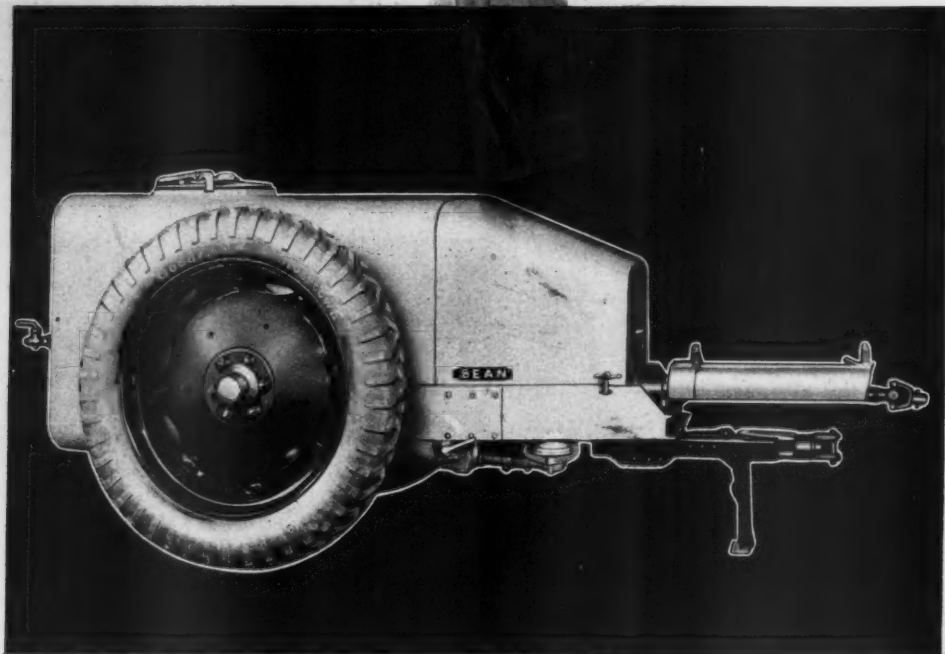


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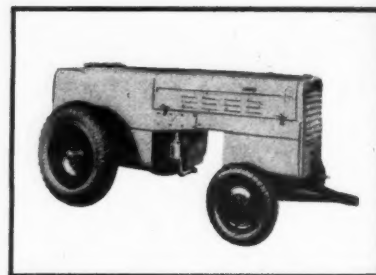
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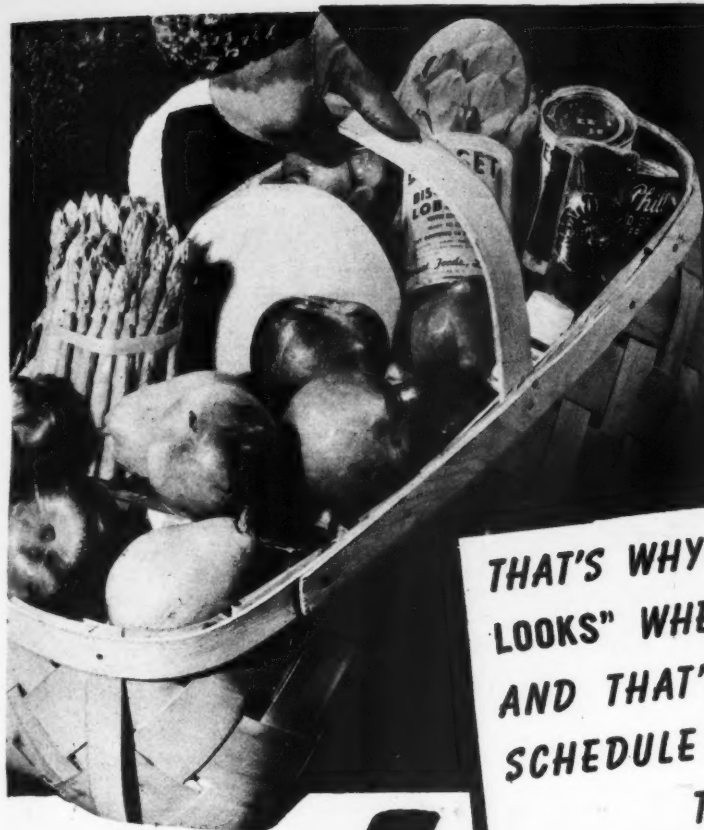
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APPLES TRAVEL IN *Fancy Company* THESE DAYS

THAT'S WHY APPLES MUST HAVE "GOOD
LOOKS" WHEN THEY GO TO MARKET...
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SCHEDULE PLANS SHOULD INCLUDE
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Sulfur **PLUS**

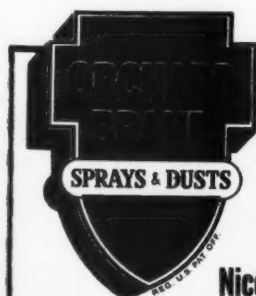
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MICRO-SPRAY* SULFUR

Micro-Spray Sulfur is for growers who prefer ultra fine particle size. It is high in sulfur content and has set high performance records in filming and effectiveness.



FRUIT SPRAYS

Dritomic* Sulfur • Apple Dritomic* Sulfur

Micro-Spray* Sulfur • Lime Sulfur Solution

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FEBRUARY, 1942

AMERICAN FRUIT GROWER

E. G. K. MEISTER, Publisher

IMPORTANCE OF FRUIT FIELD RECOGNIZED

AS FORECAST in these columns last month, a provision has been made in tire rationing regulations, enabling growers to procure tires for their trucks as well as for tractors and farm implements. Trucks which transport farm products and foods are eligible for tires except those delivering products to the ultimate consumer. Thus, growers now can obtain tires and tubes for trucks, tractors, power sprayers, dusters, and other farm implements for which tires are essential.

A new priority rating of A-3 has been assigned to farm machinery and is expected to allow farm implement manufacturers to produce 83 per cent of the machinery they produced in 1940. Materials for repair parts will be produced at an average rate of about 150 per cent of the 1940 level.

Certain kinds of machinery will be produced in larger quantities than 83 per cent while less essential machinery will be curtailed below the 83 per cent level. For instance, the production of belt power hay presses has been cut to 50 per cent while the production of power sprayers has been raised to 97 per cent. Other fruit farm equipment also received high ratings. Power dusters will be produced at 103 per cent of 1940, and cider mills and fruit presses at 87 per cent.

"ALL OUT" FOR VICTORY

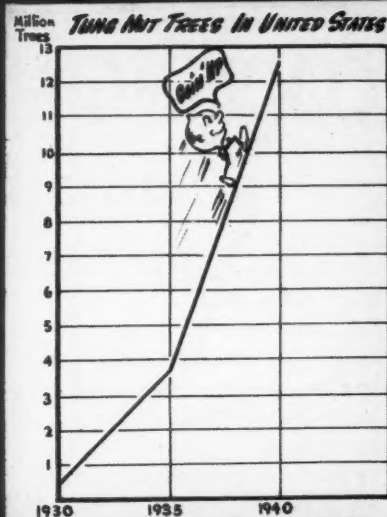
AGAIN FRUIT growers are being called upon by Uncle Sam to perform "distinguished service" in behalf of the nation's health and future well-being, by aiding in the countrywide Victory Garden Program. And, because of the importance of the 5,760,000 vegetable and fruit gardens which the government calls for upon the nation's farms, AMERICAN FRUIT GROWER with this issue institutes a new department (see page 22) which will be devoted to practical production of vegetables and poultry, as essential foods along with fruits.

In addition to information on vegetables and poultry for Victory, AMERICAN FRUIT GROWER also is re-introducing a special page in each issue devoted to small fruits. To the newcomer in the field of fruit growing, we also draw attention to the recently established page in each issue which explains "First Steps in Fruit Growing."

WAR WITHIN A WAR

CALLED upon to produce more fruit, plant more gardens, and help finance government expenditures, the fruit grower is waging a war against Axis nations just as surely as the Army and other fighting forces. The grower also must continue his battle with the insect enemies who conquer by sheer numerical strength. It is a war within a war and both battles must be won.

"Insects? We won't have much trouble with them," say some. But let's not underestimate the strength of our bug pests. The insect race is fifty million years old while we are only five hundred thousand years old and the bugs are veterans of invasion. The total estimated damage to fruit crops by insects for 1936 was 56 million dollars. So let's not underrate our insect opponents. Thorough and timely spraying or dusting with the proper insecticides plus supplementary controls are the grower's best battle weapons against insects.



"MY COUNTRY 'TIS OF THEE"

THE graph with the tung nut man directly above shows the phenomenal increase in the plantings of tung nut trees in the last decade. The tung tree bears a nut from which wood-oil is taken. This oil is used in the manufacture of paint, varnish, lacquer, and waterproofing material. According to Bureau of Census, due to a drastic curtailment of imports from the Orient and because of a heavy demand by domestic industries for oil of this type, the tung tree is expected to play an increasingly important role in the agriculture of the Gulf areas of the South.

AT the New York Horticultural Society meeting a grower asked, "When is the best time to purchase fertilizers?" The terse, revealing reply was, shot right back, "Day before yesterday." Cold facts indicate beyond a doubt that supplies will be scarce and shortages will exist.

WASHINGTON is filled to overflowing with businessmen flocking to the government. Already it is well nigh impossible to find a place to stay yet many thousands more are expected in the next few months. Movement of several government agencies out of Washington probably will not help much since workers in these agencies are resigning so they may stay in Washington.

ACCORDING to the Office of Production Management, the estimated million to a million and a half tons of scrap iron lying on American farms, if combined with other materials, would build 139 modern 35,000 ton battle-ships.

CODLING MOTH CONTROL

NORTH - SOUTH - EAST - WEST

For many an apple grower, last season bloomed with the promise of a clean crop and a profitable year. At that time, however, few people realized that favorable weather conditions plus a large carry-over from the previous year would give the codling moth a head start which even poisonous sprays and special barriers could not overcome. "The codlin' moth went plumb wild," said a Kentucky grower, "and we couldn't stop it." To answer the questions of the country's apple growers on moth control, AMERICAN FRUIT GROWER invited experts throughout the country to participate in the panel discussion printed below which reveals the latest available facts. For the illustrated life history of the codling moth, see page 30.

—Editors.



CONTROL IN NEW YORK

By J. A. EVANS
Cornell University

YEAR AFTER year the codling moth causes more concern among apple growers in New York than any other single pest. The heaviest infestations are located along the south shore of Lake Ontario in the western New York fruit growing section. In recent years, however, a number of heavy infestations have developed in the Hudson River section of eastern New York.

Since the establishment of the new spray residue tolerances in 1940, it has been possible to control light infestations of the codling moth with three cover sprays of lead arsenate, used at the rate of three pounds in 100 gallons of the spray mixture. This program also takes care of the apple maggot which is an important problem in some orchards.

In heavy infestations two programs are available. A full schedule using about four sprays of lead arsenate for the first brood and two for the second brood may be applied in which case the fruit will have to be washed to remove excess spray residues. The dosage of lead arsenate is increased to from four to six pounds per 100 gallons of the spray mixture. This program gives good control of deep worm holes but does not always satisfactorily control the shallow "sting" type of injury.

In general, our non-residue deal is built around the use of some form of nicotine, used alone or incorporated with a summer spray oil. Nicotine sulfate, one-half pint to 100 gallons of the spray mixture, or one of the dry prepared nicotine-bentonite, or "fixed" nicotine compounds used at manufacturer's directions, have given equally good results when used with one-half of one per cent summer oil. In very heavy infestations the fixed

(Continued on page 18)

SITUATION IN OREGON

By LEROY CHILDS
Hood River Experiment Station

THE CODLING moth at Hood River, and for the most part elsewhere in Oregon, is the most expensive pest with which apple and pear growers have to deal. Control measures are costly and time-consuming, and the reduced value of fruit due to damage in the form of wormy and "stung" apples plays an important part in cash returns. Intensity of infestation varies somewhat from year to year due to climatic conditions which are favorable or unfavorable to moth activity. Generally speaking, however, the trend during the past 20 years indicates the problem of control is becoming more, rather than less,

(Continued on page 18)

IN THE MIDWEST

By W. P. FLINT
Illinois Experiment Station

APPLE GROWING in the midwest really is divided into two rather distinct areas—the southern area where the codling moth nearly always has several broods, and the northern area where the insect has only one and a partial second brood.

The season of 1941 was highly favorable to codling moth build-up. A moderately large number of the worms went into winter quarters in the fall of 1940. This was followed by a mild winter, and in southern Illinois by a hot dry summer and long warm fall. All these factors combined to produce one of the heaviest codling moth infestations we ever have experienced. In northern Illinois rain was abundant throughout the summer, but even in this section the hot late summer and warm fall produced heavy late infestations.

(Continued on page 19)

CONTROL IN THE SOUTH

By S. MARCOVITCH
Tennessee Experiment Station

AMILD WINTER, an excellent carry-over, and a dry hot spring all combined to give us the worst codling moth damage we ever have had. The warm early spring was exceptionally favorable for egg deposition and produced an enormous build-up in codling moth population. Not much can be done about the weather, but it is in our power to do a thorough job of spraying at the right time.

More material per tree and a better job of coverage than ever before will be necessary to prevent heavy damage again this season. The Tennessee spray schedule does not call for lead arsenate in the first cover spray. In the past we may not have needed it, but we strongly recommend that it now be included. Old trees should be well pruned and fruit should be thinned to insure better penetration. Special attention should be given to the top and interior of the tree. Wormy thinnings and cull fruit should be destroyed.

A calyx spray and five cover sprays of lead arsenate (3-100) are recommended for the first brood codling moth. More emphasis now is being laid on the control of the first brood, which is essential to prevent build-up or a heavy second generation of moths.

Supplementary measures have not been used to any extent in the South, but they are essential to assist in control. One of the best supplementary measures is the use of bands. Where used properly as many as 90 per cent of all the worms leaving the fruit may be caught. Bands will cost less than 10 cents per tree and will provide a certain amount of insurance for the crop. The bands should be put in place before June 1. Packing sheds should be screened to prevent the moths from reaching the orchard.

FEBRUARY, 1942

A Northern Spy tree like this never would decline except for senility were there no insects, diseases, or other injurious factors.



WHEN IS AN ORCHARD OVER AGE?

By J. H. GOURLEY

TREES grow old. Yet, the fruit trees of any given variety are all a part of an original seedling, mutant, or chimera which may have come into existence many years ago. Each one is renewed in vigor by being propagated vegetatively, thrives for a time, and ultimately declines.

Now, if a tree grew in an environment free of all hazards, there is no reason why it should decline except from senility. No insects, no disease, no weather injury, no excess or deficiency of water or nutrients—what a Utopia! Fruit trees are subject not only to all of these and more, but also one branch is a competitor of another. Some branches grow too tall and shading effects enter, some branches are enfeebled, fruit becomes small and fails to color properly, costs of care mount, net profits are reduced or lacking. In addition to this not too favorable picture, the variety itself may have become obsolete, or the actual site may have proven unfavorable.

True, this is not always so. Some trees and orchards reach an advanced age and still are profitable, but the trend of thinking in America turns away from old orchards. The fine point to decide is when an orchard has received the proper care to keep it young, and what we mean by old.

Very properly the program of the Apple Planning Committee at present is to remove a large acreage of unproductive or unprofitable trees and the government contributes toward their removal. The object is to balance production and demand. Now I wonder what odium will be upon us when we awaken some of these times to find we actually have too little fruit! So the pendulum swings.

I am not arguing for less or more acreage so much as for the desirability of producing part of the fruit from youngish trees, of always having more young trees coming along.

It is difficult to say when apple and peach trees should be removed because they no longer are profitable, and any answer that is too arbitrary is bound to be wrong under many conditions. It depends upon the site of the orchard, trees per acre, varieties, size, age, and treatment which the trees have received.

It is clear that economical production depends in considerable part upon yield per acre. Unless an apple orchard produces, on an average, 200 bushels per acre, it is questionable whether the grower is more than breaking even; perhaps, 250 bushels would be a safer marginal figure. Many commercial orchards produce less and many produce more than this figure. It is the general belief, and figures probably will bear this

out, that orchards in general produce more than they did previously.

One orchardist usually is interested in the view of another, and a few such views are given here as they were obtained from successful and experienced men in this field.

Of a group of 140 orchardists in Ohio, 75 per cent considered that their orchards produced fruit most economically in the 15- to 25-year-period and only 10 per cent extended that period to 35 years.

Seven orchardists in Eastern Massachusetts placed the economic optimum as follows: four at 40 years, two at 45 to 50 years, and one at 60. For peaches two placed this age at 12 years, one at 12 to 14 years, and one at 10 years. In that section it depends on variety, amount of X disease present, and amount of winter-killing.

One grower in Connecticut believes that we must come to a 40-year life expectancy program for apples, keeping 25 per cent of the area in trees under 10 years of age at all times and preferably half in trees 25 years and under. He comments that youth in humans, animals and fruit trees always will be able to cope with the situation.

A New York grower who has spent most of his 79 years in the apple business finds that he cannot afford not to cut out and replant, and he has his

(Continued on page 23)

AMERICAN FRUIT GROWER'S SECOND HARVEST SPRAY SURVEY

THE CONSTANT anxiety and dread of McIntosh growers that half of their fruit would drop any day before it was ready to be picked apparently has been removed by the use of harvest sprays, likewise, uneven ripening which makes two and three pickings necessary, lack of color and size, and a lot of other troubles which have discouraged the McIntosh growers.

New varieties such as the Macoun, Kendall, and Cortland have been developed and were ready to take the place of the popularity of McIntosh until growers discovered the magic of naphthalene acetic acid and naphthalene acetamide, known as the harvest sprays. A minute quantity of this material, sprayed when the fruit begins to drop, overcomes the most serious weaknesses of the McIntosh as a commercial variety.

This new harvest spray material has achieved its greatest triumph in re-establishing the McIntosh apple and, thereby, saved millions of dollars in orchard investment.

The story of the harvest fruit spray is one of spontaneous and uniform success. After two years' of widespread use, no inherent weaknesses or failures of the material have been discovered. Many growers in the second year of its use in their orchards experimented boldly with new plots and additional fruits. They were confident that this new harvest spray was harmless when used as directed, and many interesting and new discoveries were made.

In general, it was found that temperatures when spraying, tree vigor, drought, and timeliness were more important in the results attained than quantity and number of applications. Some growers used the harvest spray to combat severe windstorms which spread through the United States from Texas northeastward shortly before harvest time.

In the second annual harvest spray survey, just completed by AMERICAN FRUIT GROWER, McIntosh growers ranked first in the saving of fruit. The majority of McIntosh growers sprayed once and attained an increase in size and color in their fruit. Picking also was delayed for several days and even weeks by the spray, depending on the inclination of the grower as the sprays kept the fruit on the trees long after the usual picking date. These benefits of the sprays also were gained by the growers of Delicious, Jonathan, Rome, and 25 other different apple varieties as well as by

Growers Point Out That—

"We add a pint or more of summer oil to each 100 gallons and feel that we greatly increase the efficiency of hormone sprays. We seem to have a bit less storage scald with oil application and a better finish."—*Indiana apple grower.*

* * *

"I had a tremendous crop of pears. After putting on harvest spray, I picked twice. Result was 90 and one-half tons marketable fruit from acreage that has not for many years exceeded 60 tons."—*Washington pear grower.*

* * *

"Our Jonathan apples were wormy. This spray does not affect faulty apples as it does good fruit, but it sure pays to use it."—*Missouri apple grower.*

* * *

"I found that one application lasted 10 days on McIntosh and two weeks on other varieties."—*Maryland apple grower.*

* * *

"D'anjous, which usually drop heavily before picking, did not lose a single fruit because of the spray. Part of one tree was left for 30 days after the rest were picked but no fruit fell."—*Washington pear grower.*

* * *

"We will use the harvest spray next year. Results depend on timing, proper temperatures (55 or above), and thoroughness of application. Even at its present cost it is a good investment, this we know."—*New Hampshire apple grower.*

* * *

"Believe spray is necessary on summer varieties—especially during hot sultry spells. Not as effective in cool weather. Feel it should be applied on a hot day to act quickly."—*Vermont apple grower.*

* * *

"We did notice that where the drought had injured trees noticeably, the hormone could not hold them on."—*Pennsylvania apple grower.*

growers of several varieties of pears.

More Delicious growers reported satisfactory results of the sprays this year than last year. Practically all the Delicious growers gained an increase in color and size and, as in the case of McIntosh, one spray sufficed for good results. The average Delicious trees sprayed were between 16 and 25 years old and, in the instance of Delicious, picking as a rule was held off for from one to two weeks.

There was slight variation in the use of the sprays on Stayman Wine-sap as half of the growers used the sprays twice on this variety. Results were about the same as on the other

varieties though a few growers noticed moderate breakdown in the fruit whereas little, if any, breakdown was reported on the other varieties.

Spraying was done usually about 10 days before harvest time, or just as soon as the fruit was about to begin dropping. This is true on the spraying of both apples and pears.

The highest percentage of poor results was reported by the Wealthy growers though more than 90 per cent nevertheless reported an increase in color and a desired delay in picking. One grower even estimated that the number of bushels saved from dropping per tree in his Wealthy orchard was 25 per cent of the crop.

Williams growers were exceedingly pleased with results of the sprays and no unsatisfactory mention of the sprays was received from them.

The average number of bushels saved from dropping varied greatly. Some growers saved three bushels per tree, some saved 10 bushels, and other growers went so far as to estimate that 15, 65, or 75 per cent of the crop was saved. This is particularly true of growers in those regions which suffered severe windstorms who asserted that the sprays kept the fruit from dropping during these storms.

The apple growers have become staunch supporters of the use of the harvest sprays, but the pear growers this year were exceptionally enthusiastic and grateful for the sprays in their reports of AMERICAN FRUIT GROWER'S survey. The sprays made a great difference with pears. No pear grower who participated in the survey this year was dissatisfied in even a small measure with the sprays. In instances where only one picking was possible in the past, two and three pickings were possible this year as a result of the sprays.

Like apple growers, most of the pear growers used the spray once.

An increase in size was invariably achieved. Because the Bartlett's and D'anjous and other pears stayed on the trees, making the second and third pickings possible, the pear growers had bigger crops and estimated the amount of pears saved by the ton. One pear grower said he saved at least 15 tons on 440 trees with one application of the spray.

It was estimated that fruit growers received an increase in cash income of \$117,000,000 in 1941. How much of this larger income resulted from

(Continued on page 17)

MARKETING

HOW TO MAINTAIN ROADSIDE SALES IN FACE OF TIRE SHORTAGE

A VITAL question facing growers with roadside markets is how to prevent a serious drop in business despite a decrease in passenger car travel because of tire shortages. Market operators from now on must encourage customers to buy in larger quantities and for their neighbors as well as for themselves. If possible, it will be wise to maintain retail outlets in the city. Some growers will be able to increase the variety of products sold at the market and thus can advertise "one-stop" buying.

To find out how growers with profitable markets think the tire shortage will affect them, a telegraphic survey was conducted among six growers. Here is what they say:

Better Signs—Better Sales

"Certainly expect considerable drop in travel through tire rationing. Hope by better road signs to stop a greater percentage of cars, and by more careful selling to increase sales to each car that stops. I also am adding a sandwich shop and have marked sales packages of quick-frozen meat and poultry, made possible by quick freezing facility which was recently installed."

Alfred A. Swann,
Dandridge, Tennessee.

Hopes for Tires by Fall

"We continued our roadside market with wide-open full display, but after Christmas business slowed down. However, this has been our usual experience over the past few years. We hardly doubt, however, that the tire situation eventually will affect the tourist trade, and we hope the tire problem will be mastered before another harvest."

J. Andrew Cohill,
Hancock, Maryland.

Will Sell at City Stands

"Estimate tire shortage will cut roadside sales 30 per cent during the next six months and 60 per cent thereafter until emergency ends. We will hold volume by opening sales locations in the city business areas for apple sales from October to March."

G. Leslie Smith,
Rock Island, Illinois.

Will Seek Group Sales

"The tire shortage will adversely affect roadside and orchard retail marketing. The

solution is not clear. We may encourage buying by individuals for groups of friends or neighbors. We probably will have to find other outlets for the bulk of the crop. We will cooperate without complaint in the name of national defense."

J. J. Hill,
Montrose, Michigan.

Expects Quantity Buying

"I have not made any provisions for taking care of our fruit stand trade next fall as the tire shortage may turn out as did our scare about rationing of gasoline in New England this fall."

"Even if the rubber shortage proves to be as serious as now indicated, the situation by next fall may be all ironed out and new regulations may be made which will allow the traveling public a reasonable amount of privilege. In that event, the buyers will buy in bushel and two-bushel lots which will result in greater volume."

Walter B. Farmer,
Hampton Falls, New Hampshire.

Urges Buying for Neighbors

"I definitely believe the tire shortage will affect our roadside marketing business. I think that in a year there will be half the cars there are now. We are going to do all we can at the roadside, but we will be forced to sell more at wholesale. I'm going to advertise and will have signs suggesting that people buy for neighbors. They can buy in larger quantities and save on price. We will emphasize this in our advertising."

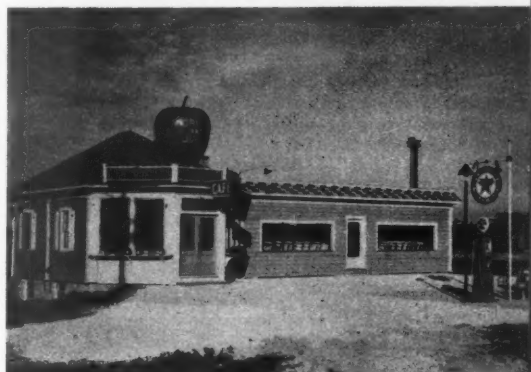
I. T. Quick,
Peninsula, Ohio.



"I believe that in a year there will be half the cars there are now. We will be forced to sell more at wholesale," says I. T. Quick, whose market is above.



"We hardly doubt the tire situation eventually will affect the tourist trade and hope the problem will be mastered," says Andy Cohill about his market.



G. Leslie Smith states, "I estimate tire shortage will cut roadside sales 30 per cent during the next six months and 60 per cent until emergency ends."

"I have not made provisions for taking care of our fruit stand trade next fall," says Walter Farmer whose market is at far right. "Hope by better road signs to stop more cars," states Alfred Swann. One unit of his market is shown at right.

FEBRUARY, 1942





CAMERA

AT
NEW YORK STATE
HORTICULTURE
SOCIETY
MEETING



Top left—left to right: John G. Hicks, Canandaigua; J. L. Salisbury, Phelps; and R. W. Pease, Canandaigua. Left—Dr. A. B. Burrell, left, with Secretary Roy P. McPherson. Bottom—left to right: Dr. P. J. Parrott, New York Experiment Station; Harry Eustace, San Francisco, Cal.; and M. P. Rasmussen, Cornell.

Top—left to right: Dr. J. M. Hamilton, State Experiment Station, Geneva; Dr. E. C. Auchter, Chief, Bureau of Plant Industry, U.S.D.A.; and E. Stuart Hubbard, Poughkeepsie. Above—left to right: H. P. King, Trumansburg; Roger M. King, Trumansburg; and H. L. Mantle, Painesville, Ohio. Below—left to right: John W., George R., and Eugene Collamer from Hilton.

AMERICAN FRUIT GROWER
PHOTOGRAPHS

Below left—left to right: C. A. Rogers, Bergen; George L. Slate and Carl S. Pederson, from the New York State Experiment Station, Geneva. Below middle—Grant G. Hitchings and Mrs. Hitchings, Nedrow, sample the apple cherry juice distributed at the horticultural show. Below right—left to right: Mark Buckman, Sodus Fruit Farm, Sodus; J. Wessel Ten Broeck, Hudson; and James Case, Sodus, talk over events of importance to the 87th meeting.



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Black Leaf 155 . . .

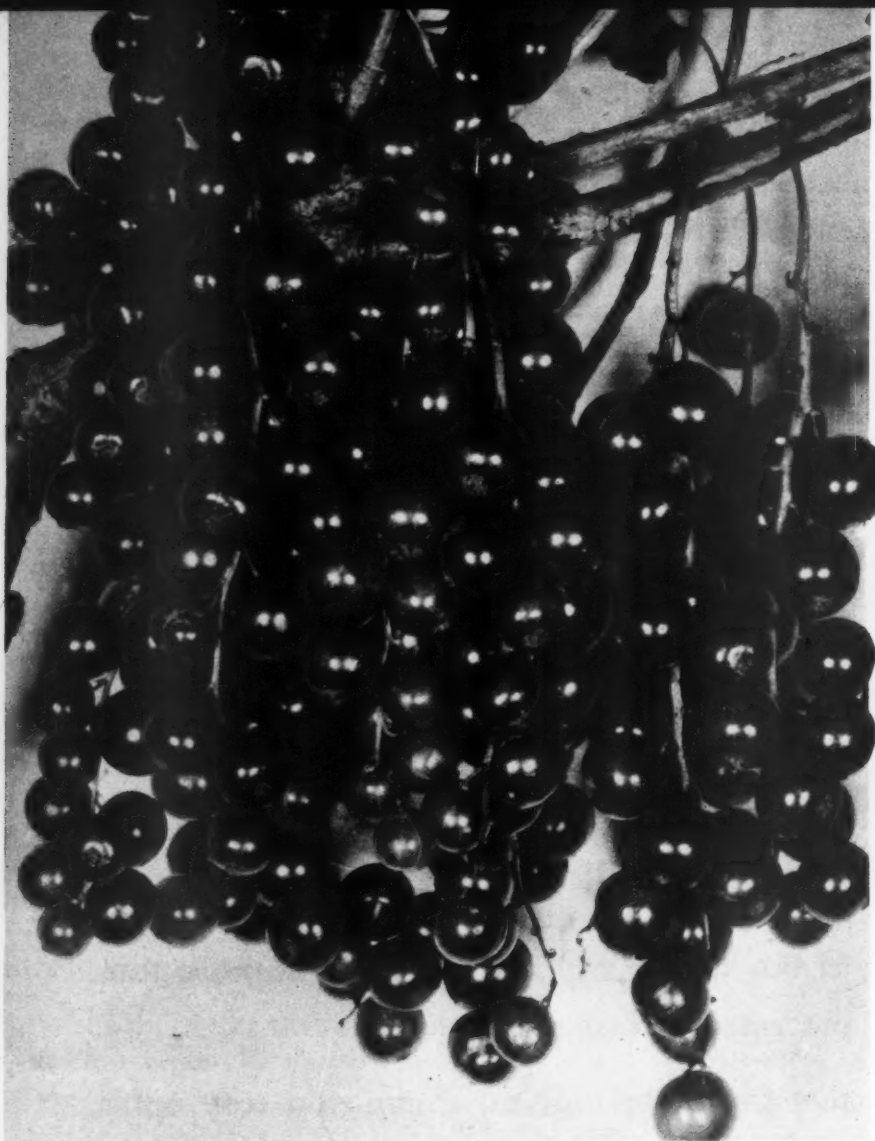
Non-caustic protection for foliage
and fruit quality—controls codling
moth, aphids, leafhoppers, bud-
moth, leaf miners, pear psylla,
and grape berry moth.

4240

**ECONOMICAL—
10-LBS. OF BLACK LEAF 40
MAKE 1000 GALLONS
OF EFFECTIVE SPRAY**

**Black
Leaf
40**

**TOBACCO BY-PRODUCTS & CHEMICAL CORP.
INCORPORATED • LOUISVILLE, KENTUCKY**



The Red Lake Currant, shown above, was introduced by the Minnesota State Fruit Breeding Association and rapidly is assuming number one position among currant varieties.

NEW FRUITS •

Red Lake Currant

Developed by the Minnesota Fruit Breeding Farm, the Red Lake Currant has become one of the most desirable red currant varieties because of excellent bush and fruit characteristics. According to some authorities, the fruit is as good as Perfection and the bush is better in plant characteristics because of greater vigor and stronger canes. Most growers have found it an excellent sort.

New Black Raspberry

Taking No. 1 position as the best late black raspberry now available, the Morrison originated as a chance seedling under a peach tree on the Ohio farm of Fred Morris. It is a good grower, a good yielder, and has large and attractive berries. It is slightly later than Cumberland.

Raspberry 13618

The New York State Fruit Testing

Association is expecting to introduce a new raspberry variety in 1942. It is known now as raspberry 13618 and was originated at the New York Experiment Station. Plants are not yet available. It is a cross between Newburgh and Lloyd George, and is late, bright red, and firm. The fruit is a little more out in the open and easier to pick than the Taylor. It is somewhat like Taylor but is not susceptible to mosaic.

Blackberry Breeding

Blackberry growers will be interested in the work being done at the New York Experiment Station with blackberry breeding. Already several promising varieties have been developed for testing.

Blueberry Mulch

A sawdust mulch has proven to be an excellent cover for blueberry plants. Experiments have shown that blueberries will grow 10 times as much when under a sawdust mulch than when under no mulch and twice as much under sawdust than under

a straw or hay mulch. Better growth is obtained because of improved moisture conditions, lower and more uniform soil temperatures, and because there is no cultivation to disturb the shallow rooted blueberry plant.

Alaska Plantings

Varieties of fruits developed by the Minnesota Fruit Breeding Farm are doing well in far off Alaska, according to a letter recently received at the Horticulture Division, University Farm, St. Paul, writes J. D. Winter. A grower at Palmer, Alaska, wrote, "A station that originated the Latham and Chief raspberries and the Red Lake Currant, like yours has, certainly has done a lot. I have them growing up here in Alaska."



The Morrison black raspberry originated as a chance seedling on a fruit farm in Ohio and produces excellent fruit.

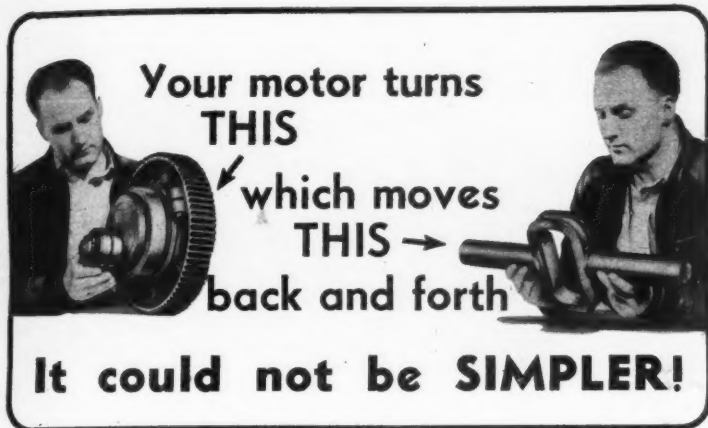


For good blueberry growth, a sawdust mulch has been shown to be profitable. It helps by improving soil conditions.

"You Can Save Yourself Many a Headache!"

"Buy the sprayer that has *fewest moving parts*—and your spraying will be done with Least Trouble, and Fewest Repairs.

"**Unequalled Simplicity** is the reason for the 'Friend's' better performance. Look at these two pictures, showing the moving parts of a 'Friend' pump."

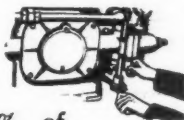


And the "Friend" Sprayer has other splendid improvements that will save you Spraying Time and Money:



You never need spray with a leaky pump—the "Friend's" packing is adjusted instantly, from the outside.

Every part is easy to get at. Valves and Controller are outside for instant cleaning.



ALL roller bearings—90% of them Timkens. Not one plain bearing on any "Friend" pump. Think of the bearing troubles you avoid.

And there are many other exclusive features that make it easier to keep a "Friend" pump running smoothly. See the new "Friend" Catalog.

Why does a big modern bomber require **18 men on the ground for every man in the air?**



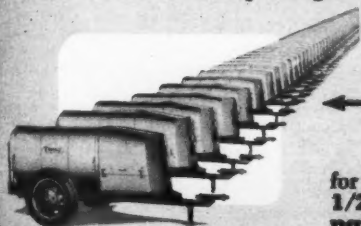
Because it has more than 30,000 parts! This complexity has created a tremendous problem of maintenance.

Unless you have a crew of mechanics to look after your sprayer, it is important to use the *Simplest and Most Reliable* sprayer ever built.

So before you buy a sprayer, find out how much labor and expense are needed to keep it in good working order. *The differences in Dependability and Repair Cost are almost unbelievable.*

These 50 "Friend" Sprayers—all of them together—have fewer parts than the one bomber shown above!

The "Friend" pump is by far the simplest that you can find for high-pressure spraying—**only 1/2 to 1/3 as many moving parts.**



When you own a "Friend," you have no expense for repairs to crankshafts or connecting rods, wrist pins or plunger cups. And no cylinder lining—the "Friend" pump's plungers don't touch the cylinder walls.

You can't realize what an immense difference there is between sprayers, until you use a "Friend" side by side with other sprayers in your orchards or fields.

Just ask some of the growers who have switched to the "Friend" after using 2 or 3 sprayers of other makes.

"FRIEND" MFG. CO., Gasport, N. Y.
Sprayers, Dusters, Fruit Sizers & Cleaners

You can get any style of mounting—

Tractor-Trailer

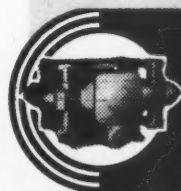
Skid mounted, for use on truck

Outrigger, 4 wheels, short-turning

and many other styles



Mail the Coupon for the new "Friend" Catalog



**Easiest to Maintain
in Working Order--**

Fewest Moving Parts

"FRIEND"

"FRIEND" MFG. CO., Gasport, N. Y.

Send your 1942 Sprayer Catalog, explaining the "Friend" pump and showing all types of mountings, to

Name

Address

(I have acres of)

(Kinds of fruit)

THE BEST ADVICE WE CAN GIVE YOU!



ORDER DRY LIME SULFUR **NOW** FOR CONTROL OF APPLE SCAB

In the first place we are able at this time to take care of your requirements of Dry Lime Sulfur and to ship promptly regardless of freezing weather. You can then hold it until ready to use without any danger of deterioration.

Secondly, S-W Dry Lime Sulfur is standard 33° Baume liquid lime sulfur in dry powdered form containing no water. In this concentrated form it actually costs you

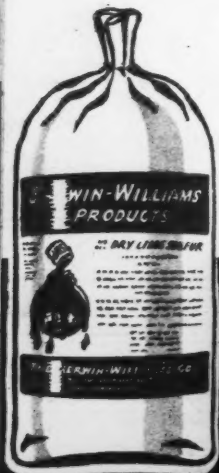
less to use and to handle than old-fashioned liquid lime sulfur.

Furthermore, millions of pounds of S-W Dry Lime Sulfur have been used successfully over the past twenty years as a spray for the prevention of apple scab.

S-W Dry Lime Sulfur will not russet the skin of apples or injure the foliage as does liquid lime sulfur, and, in contrast to liquid lime sulfur, it stimulates a high color and smooth finish on the fruit.

S-W DRY LIME SULFUR HAS THESE DEFINITE ADVANTAGES

It is packed in 12½-lb. bags, 8 or 16 to the drum. Does not deteriorate with age or is it affected by freezing temperatures. You can haul more S-W Dry Lime Sulfur at less cost than you can liquid lime sulfur and with less wear and tear on your truck tires. Consult your insecticide dealer or write to us for prices.



THE SHERWIN-WILLIAMS Co.





Baldwin trees, five years old, alternately on Malling Stocks I and XVI. Trees on the semi-dwarfing Malling I are slightly larger, but have shown a slight tendency to bear earlier.

THERE IS A stock market that has only a seasonal activity. In the fall of every year nurserymen deal extensively in stocks—not those of Wall Street, but the kind grown in the Pacific Northwest, in Kansas, and scattering in other sections of the country. Every fruit grower knows that the start of a Delicious apple tree is a stock, usually a seedling, and that the tree grows from a single Delicious bud from a Delicious tree. The single bud may be cut from a “bud stick” and slipped under the bark of the stock, or it may be one naturally produced on a scion grafted on to the stock.

Curiously enough most fruit stocks, except for the peach, are grown by producers who make this their business and not by the nurserymen who grow the trees that you buy to start your orchard. Formerly a large part of the stocks used by American nurserymen was imported from Europe where long experience and relatively cheap labor produced stocks that could be sold at a price and of a quality that put American competition at a disadvantage. With the establishment of the Plant Quarantine about a dozen years ago, importation was practically stopped and Western growers now produce the apple and pear seedlings, the Myrobalan stocks for plums, and the Mazzard and Mahaleb stocks for cherries. All these stocks are grown from seeds. Because the seeds are from trees that have not been bred to uniformity, as have our seeds for field, garden, and flower crops, the fruit tree seedlings are more or less variable. No two are exactly alike. They differ in vigor and in characteristics of twig and leaf. These stock differences, particularly in vigor, might be expected to be one of the principal causes of differences in the vigor and productiveness of orchard trees, but this does not seem to be true. Most of the differences in vigor and productiveness of orchard trees are caused by soil variations, or by diseases, or by injuries.

The seed from which seedling fruit stocks are grown has come mostly from European sources. Now there

is a growing tendency to plant seeds from domestic sources. Most of this seed is a mixture from cider mills and canning factories and is of varying excellence. We know that the seed of some varieties of apples, such as Baldwin and, probably, all the others known as triploid varieties, does not give good stands of good seedlings. On the other hand, seeds of McIntosh, Jonathan, Rome, and Winesap, are superior. Probably, it is much the same with varieties of other fruits. Among peaches, seeds of Muir and certain other California varieties give superior seedlings. If we are to continue to use seedling stocks, seeds of certain varieties, even if the male parent is not known, will be preferred.

But we may not continue to use seedling stocks. This brings us to another new development in the stock market. Asexually propagated stocks have been long known; in fact, grapes and all bush fruits that root readily always have been grown from cuttings or layers and no understock is required. Dwarf apples always have been grown by budding on the so-called dwarf stocks which are really varieties, the fruit of which is usually worthless but which can be propagated easily by mound layering. This method of propagation is to grow the plants as bushes and heap earth around the base of the young shoots which then throw out roots. These rooted shoots can be removed from the parent plant, lined out, and budded just like seedling understocks. We long have known two kinds of dwarf apple trees, the very small kind budded on the French Paradise and the larger trees budded on English Paradise or Doucin. It has become known in the last 20 years that there are

(Continued on page 20)

Above—McIntosh tree on Malling Stock XII four years old, not yet bearing. Trees on this stock behave very much like common seedling-rooted trees.

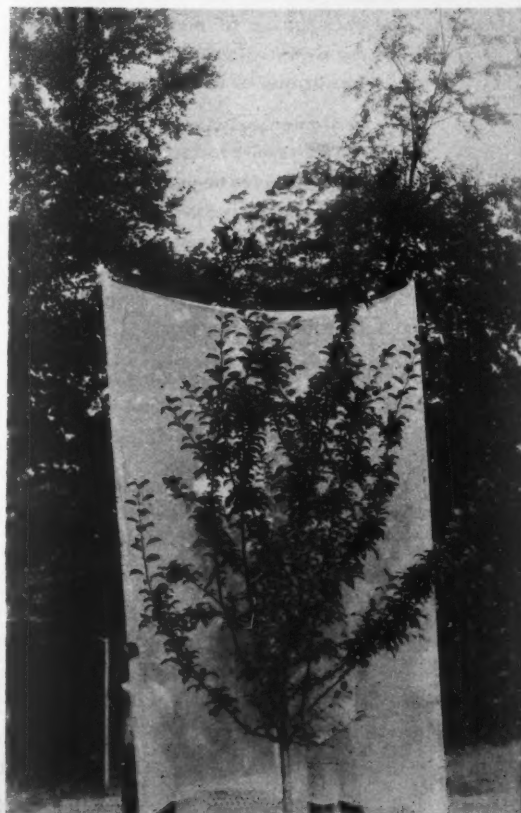
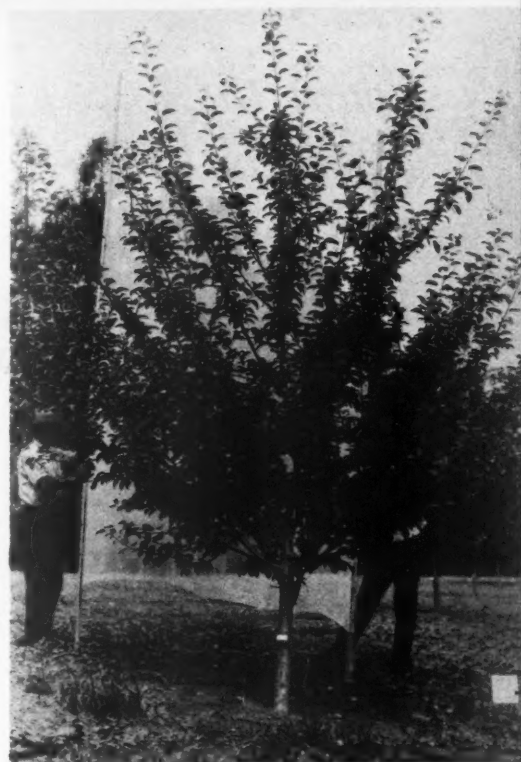
Right—Wealthy tree on Malling Stock V four years old, just beginning to bear. It is still producing, and is only half as large as seedling-rooted trees.

AMERICAN FRUIT GROWER

SOMETHING NEW IN THE STOCK MARKET

By J. K. SHAW

Massachusetts State College



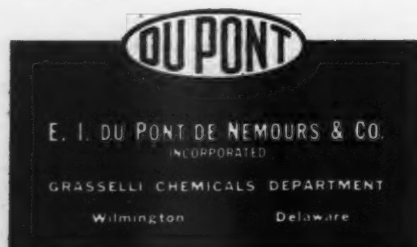


Count the **EXTRAS** behind every **DU PONT PRODUCT**

- **Research.** The du Pont Pest Control Research Laboratory is one of the most thoroughly equipped commercial laboratories in the world. It is constantly contributing to the development of better materials for more economical and effective crop protection.
- **Field Testing.** Every du Pont product is thoroughly tested under commercial conditions before it is released to growers. This precaution gives an added assurance of performance and safety.
- **Manufacture.** Products made by du Pont are carefully tested during each phase of manufacture. This rigid control protects the quality and uniformity of the finished product.
- **Customer Satisfaction.** Some of the agricultural products now made by Du Pont have been used successfully for over thirty years. Today those products improved many times are still preferred by an ever increasing number of growers — evidence of customer satisfaction.

Use the list of products on the opposite page as your guide for better crop protection. Literature is available on request.

Tune in "Cavalcade of America" every Monday evening over coast-to-coast NBC Red Network.



Here is an interesting sight, night spraying in New Hampshire. The trend in this State is toward the use of flotation sulphur although other forms of mild sulphur also are used. However, lime-sulphur is not obsolete, being used when necessary.

MILD VERSUS LIME-SULPHUR

By A. F. YEAGER

University of New Hampshire

MILD SULPHUR is being used more and more in place of lime-sulphur for the control of apple scab in New England. Many growers no longer use lime-sulphur at all, but the majority keep a supply on hand to be used if it seems necessary.

Why has this switch from lime-sulphur taken place? There are several reasons for this. Least important but, perhaps, a factor is that lime-sulphur is an unpleasant material, and the man on the spray rig prefers to apply a mild sulphur.

While mild sulphur is not quite equal to lime-sulphur in the control of scab, if applied at the right time and in the right manner, it does a satisfactory job in normal years. For example, at the University of New

Hampshire McIntosh and Northern Spy on which flotation sulphur has been used exclusively for five and seven years respectively have produced more than 95 per cent scab-free fruit as compared to 97 per cent for lime-sulphur. What difference there is, is mainly the result of one very bad scab year when flotation sprayed trees produced more than 10 per cent scabby fruit.

Lime-sulphur often causes obvious injury to foliage although some growers are skillful enough so that this is not noticeable. Even where injury is not evident, careful yield records of comparable trees for a period of three years have shown an effect in the form of reduced yields on young McIntosh trees, averaging more than a box per

tree as compared to flotation sulphur, a difference of 20 per cent. In a five-year test at the University of New Hampshire where occasional injury has been evident, McIntosh yielded more than an additional box of fruit where mild sulphur was used, an increase of 17 per cent; and Northern Spy for a period of seven years, three boxes of increase per year, a difference of 40 per cent. These increases were due to a greater number of fruits produced, not to an increase in size of the individual apples.

While most of the comparisons in New Hampshire have been with flotation sulphur, other forms of mild sulphur also have been used. Their effectiveness has been correlated with the amount of sulphur applied and with its fineness. This, in general, collaborates the findings of other investigators.

Coarse, wettable sulphurs have not given satisfactory control—the percentage of clean fruit falling as low as 60 per cent in some years—but several of the newer types where the size of the sulphur particles is unusually small have given better control than flotation and nearly as good as lime—sulphur even in bad scab years.

Considering the increased yields, convenience of handling, and effectiveness of control, despite a slightly higher cost, the present tendency is for growers to use mild sulphur as their main dependence for apple scab control, but to keep lime-sulphur on hand in case scab is unusually bad or the weather interferes with making the applications when they should be.

HARVEST SPRAY SURVEY

(Continued from page 8)

the use of the harvest spray, is, of course, difficult to estimate. It is apparent, however, that this magic material which prevents apples and other fruits from dropping, which converts what might have been wind-falls into U. S. Fancy, and which allows growers to delay picking until it is convenient and profitable to do so, has contributed to the cash income of all growers who used the harvest spray.

Following are the percentages of growers reporting on results and increases in size and color:

	Good Results	Poor Results	Increase in color	Increase in size
McIntosh	83%	5%	85%	60%
		12*		
Delicious Stayman	87	13	88	81
Winesap	95	5	68	99
Jonathan	100		100	99
Wealthy	86	14	93	66
Rome	100		70	50
Williams	100		86	71
Pears	100			85

(Bartlett mostly)

*No reports as to good or poor results.
FEBRUARY, 1942

EVERYBODY LIKES EXTRAS!



Use these DU PONT PRODUCTS for extra values - - extra satisfaction

NUREXFORM Lead Arsenate. An unusual high kill lead that is compatible with lime sulfur and has excellent suspension qualities. You get complete spray out of the tank without sludge formation. NuRexform gives even thorough coverage of foliage and fruit.

GRASSELLI Lead Arsenate. A quick-acting lead that flows well through long stationary spray lines and lays down an even film. When used with ordinary conditioning agents, it builds a tight, heavy, uniform cover.

SULFORON Wettable Sulfur. A micro-fine elemental sulfur. It mixes readily with water, has superior suspension qualities and is compatible with arsenicals. It sticks to foliage with excellent spreading and covering power.

PARMONE Hormone Spray which apple and pear growers have found highly efficient for reducing pre-harvest fruit drop.

Calcium Arsenate
*DUTOX Fluorine Insecticide
Copper-A Compound
*GRASSELLI Spreader-Sticker
*LORO Contact Insecticide
*PARAPONT Paradichlorobenzene
Bordeaux Mixture
Dust Mixtures

Zinc Sulfate
*BLACK LEAF "40"
*BLACK LEAF "155"
Cryolite (synthetic)
*FLUXIT Spreader
Flotation Sulfur
Dormant and Summer Oils
Mono Hydrated Copper Sulfate

We fully expect to be able to supply growers' essential requirements. However, future shortages may occur and we recommend that you place your orders early. See your du Pont dealer.

*Trade Marks



E. I. DU PONT DE NEMOURS & CO. INC.
GRASSELLI CHEMICALS DEPARTMENT
WILMINGTON DELAWARE



POWER IS THE STUFF GOOD TRUCKS ARE MADE OF

POWER is the measure of how much work a truck can do. And that's what you're interested in these times when every truck faces a longer, tougher job. The truck with the most power doesn't wear out as fast. It handles capacity loads easier. It takes hills faster. It is quicker in traffic. That's why we've been putting *more usable power* in GMCs than you could get in any other comparable size truck engine.

Our own YMAC Time Payment Plan assures you of lowest available rates



General Motors Truck and Coach is co-operating with Government policy in the manufacture and distribution of all GMC trucks.

Truck operators can co-operate in the nation's transportation program by careful driving and proper maintenance of their trucks. This will lengthen the life of both tires and trucks.

GMC

THE TRUCK OF VALUE
**GASOLINE
- DIESEL**

AMERICAN FRUIT GROWER

CONTROL IN NEW YORK

(Continued from page 6)

nicotine compounds alone have performed less effectively than when used with summer oil although some growers come through successfully by being careful to renew the cover just as soon as it weathers off.

Needless to say, no program will be effective unless the trees are pruned and opened up to permit complete coverage of all parts. Experience has taught that in heavy codling moth infestations about one gallon of spray material is needed for each bushel of apples on the tree. Spraying from both the tank and the ground is advisable so as to cover properly the inside and top of the trees.

SITUATION IN OREGON

(Continued from page 6)

difficult. We now are using from four to six cover sprays each year, whereas, formerly three to four were usually adequate.

A number of factors doubtlessly are associated with the population increase of the codling moth. Population, particularly winter carry-over has a great deal to do with the amount of spraying that will be required and the loss of fruit that will result. Recent studies indicate that a much greater proportion of overwintering insects emerge in midsummer than formerly was believed to be the case. If the overwintering population is high in the orchard, the proportion of these stragglers will be relatively high. As trees age, it becomes more difficult to protect the fruit in the tops of the trees, hence, more worms find it possible to survive spraying operations and as a result aid in building up and maintaining population. Neglect and abandonment of orchards during the past 10 years of very low prices has had much to do with population build-up. One abandoned apple tree of mature size can produce as many as six to eight thousand worms which in turn result in moths. The four thousand female moths which we might expect will deposit an average of at least 60 eggs. From the moths from one tree, 24,000 eggs and potential worms or "stung" apples could result. To effectually reduce population, more attention must be given to sanitary practices which include (1) destruction of neglected or abandoned trees, (2) scraping of trunks for the removal of rough bark and decayed areas, (3) pruning and reducing the height of trees so that they may be thoroughly sprayed, (4) removing wormy fruit from the orchard as soon as harvested. There are other features such as banding of trees, sanitary practices about the packing house, care in the use of boxes containing hibernating worms, etc.

IN THE MIDWEST

(Continued from page 6)

In spite of this we had many growers who came through with a commercially clean crop, from less than one to five per cent wormy fruit.

First and most important is the timing of the sprays. A typical spray schedule for central Illinois, which is one that has been followed for a number of years by one of the leading orchardists in this section, was for last year:

A dormant spray of 4 per cent quick-breaking oil emulsion.

A prebloom and pink spray of two gallons of liquid lime-sulfur.

A calyx spray of 3 lbs. lead arsenate, 3 lbs. lime, 10 lbs. flotation sulfur.

First cover, the same as the calyx.

Second cover, 3 lbs. lead arsenate and 3 lbs. of lime.

Third cover, 2 qts. of summer oil and 4 qts. of Black Leaf 155.

Fourth cover of the same material, and the

First two second brood sprays of the same material.

A third second-brood spray applied about the first of September consisted of 2 qts. of summer oil, a harvest spray material, and 3 lbs. of 14 per cent 155 Concentrate.

The orchard in this case is 28-year-old Jonathan apples. There are two old orchards very close, both within 300 yards, where codling moth control is not good and these other orchards serve as a constant source of infestation. Nevertheless, on September 4, when picking started, apples showed only one per cent entered, a tenth of one per cent stung, and three-tenths of one per cent light scab. In the same orchard a block was sprayed with lead arsenate throughout the season and, the second second-brood spray was omitted, and the fruit was less than two per cent infested. This particular orchard has made the 95 per cent Clean Apple Club for the last five years and one year was tied for first place in the state. The residue was not enough to require washing except in the lead-sprayed block.

No one can say that the number of sprays given was excessive. The heavy concentration of dormant oil was necessary because of an infestation of leafroller in the orchard. The way this owner solves the problem of licking the codling moth is the same way that it can be solved in any orchard; that is, a sound thorough program of orchard sanitation, including removal of drops, destruction of all wormy fruit, keeping the orchard floor clean, scraping and banding, watching the crop as it develops by daily inspection of the orchard, and properly timing and thoroughly applying the sprays.

In the southern Illinois area, that is, the area south of a line drawn from St. Louis, Missouri to Vincennes, Indiana, if trees are 25 years of age or older, and are badly split, with many old pruning wounds and other favorable places for hibernation, it is in many cases impossible to control codling moths at a profit.

FEBRUARY, 1942

"HERE'S WHAT MY DIESEL D2 DID IN THE LAST FISCAL YEAR"

... ALBERT H. CRANE, Fennville, Michigan



Crane Orchards, Fruit Growers at Fennville, Michigan, for five generations, now are operated by Albert H. Crane. His recent report on his "Caterpillar" Diesel D2 Tractor, copied from accurate records, makes significant reading for any man with a commercial orchard. States Mr. Crane:

"In the last fiscal year, I ran my Diesel D2 877 hours doing this list of work:

Pulled 790 apple trees 5" to 30" in diameter

Pulled 640 cherry stumps

Pulled 160 pear stumps

Pulled 590 peach stumps

Moved 3000 yards of dirt with a roller-scraper

Dug 3 basements

Pushed the brush out of 170 acres of orchard

Double-disked 372 acres of orchards and fields

Dragged 320 acres of orchards and fields

Applied 237,500 gallons of spray material at 650 pounds pressure

Hauled logs out of swamp where no other tractor could go

Moved two 20' x 20' chicken houses

Pulled one semi-truck out of the ditch."

To do all this work, Mr. Crane used only 1073 gallons of 7.3c fuel! (\$78.33, season's fuel cost!)

All of which only goes to confirm that fruit-growers with "Caterpillar" Diesel Tractors have the power, traction and operating economy to do an unusual volume of hard work in a short time—at a plenty low cost!

CATERPILLAR DIESEL

REG. U. S. PAT. OFF.
DIESEL ENGINES • TRACK-TYPE TRACTORS • TERRACERS

CATERPILLAR TRACTOR CO.

Dept. A-22, Peoria, Illinois

Gentlemen:

My orchard has acres. My present power is

☐ How can I obtain an analysis of my power equipment needs, for more efficient fruit-growing?

Name R. F. D.

Town County State



This Plate of Apples Brought WORLD'S RECORD PRICE

To Russell Braman at
THE MICHIGAN FRUIT SHOW

Niagara spray materials produced the prize-winning Steele's Red apples which brought a world's record price of \$10.20 per apple for Russell Braman. Thorough applications of Niagara dusts and sprays gave Braman over 400 bushels per acre this year of which 90 per cent were U. S. No. 1 or better.

**THIS AMAZING RECORD WAS MADE
POSSIBLE BY THE USE OF . . .
KOLOFOG and KOLODUST**

Kolofog and Kolodust worked hand in hand to give Braman an all-weather control which completely eliminated scab yet improved the finish of the fruit. Niagara non-caustic sprays will give you the same 100 per cent control without russetting or spray burn.

KOLOFOG KOLODUST

SAN FRANCISCO, CALIF.



JACKSONVILLE, FLA.

NIAGARA SPRAYER and CHEMICAL CO.

MIDDLEPORT, N. Y.



USE ELGETOL DORMANT SPRAY

YOU'LL SAVE YOURSELF A LOT OF TROUBLE

ELGETOL is a non-caustic dinitro dormant spray that can be applied without fear of skin irritation. Spray operators using a material that does not burn the skin will do a much more efficient job of spraying, which is a mighty important factor in the success of any spray program. ELGETOL controls Aphid, Bud Moth, Oyster Shell Scale, Cherry Case-Bearer, Pear Psylla, and is used as a *ground spray* control for Apple Scab, Cherry Leaf Spot, Raspberry Anthracnose and Asparagus Rust. ELGETOL can also be combined with oil to control both Aphid and Scale insects with one application.

STANDARD AGRICULTURAL CHEMICALS, INC.

Davis, Calif. — 1301 Jefferson St., Hoboken, N. J.

HIGH-PRESSURE SPRAY HOSE

3 Braid — Any Length — Any Pressure to 1000 lbs.
Size — $\frac{3}{8}$ " - $\frac{7}{16}$ " - $\frac{1}{2}$ " - $\frac{5}{8}$ " - $\frac{3}{4}$ " — also
 $\frac{1}{2}$ " - $\frac{7}{16}$ " - $\frac{1}{2}$ " and $\frac{3}{4}$ " High Pressure Couplings
PROMPT SERVICE — LOW PRICES
Write for Free Sample
BROADWAY RUBBER MFG. CO.
Manufacturers and Engineers since 1901
529 E. Broadway Louisville, Kentucky



OTTAWA TRACTOR SAW
Falls Tree, Cuts Log
Uses Power Take-off any tractor. Saves fuel. Easy on fuel. Hundreds of satisfied users. Big labor saver. Low Price.
OTTAWA MFG. CO., 232 Forest Ave., Ottawa, Kans.

NEW STOCKS

(Continued from page 15)

many dwarfing stocks. We have at the Massachusetts Experiment Station nine different stocks that are distinctly dwarfing, others that are slightly dwarfing, and some that produce trees comparable to those on seedling stocks.

The story of these stocks is interesting. More than 25 years ago the East Malling Experiment Station in Kent, England, collected stocks from many sources in Europe. More than a dozen different kinds were obtained. They had various names and some lots were mixtures of two or more kinds. The mixtures were purified and 16 kinds were given numbers. The East Malling Experiment Station has been the source of several importations by experiment stations and by the United States Department of Agriculture. The Massachusetts Station obtained 13 of the 16 Malling stocks in 1926 and since has propagated them by mound layering until several thousand are now obtained each year.

We have come to know these stocks by their leaf, twig, and growth characters. Formerly, dwarfing stocks were imported by nurserymen, but for nearly 15 years such importations have been prohibited or greatly restricted by quarantine regulations. Yet, they are being propagated from stocks imported earlier. There were evidently four of the 16 Malling dwarfing stocks represented in early importations: Malling II, the old English Paradise or Doucin; Malling V, the improved Doucin; Malling VIII, the old French Paradise; and Malling III, the last always appearing intermixed with Malling II or V. We have seen several lots of dwarf stocks under propagation and all have been Malling II or V, frequently with an admixture of Malling III. Sometimes all three appear in a mixture. We have seen no Malling VIII stocks in commercial nurseries in recent years.

In some apple sections growers seem to be interested in large trees. The bigger they are, the better they are. But in New England, at least, many growers are interested in smaller trees. Trees half or two-thirds the usual size seem attractive. Such trees are easier to spray thoroughly; pruning and harvesting are less expensive; and more trees can be planted to the acre. These relatively new rootstocks offer possibilities, not the very dwarfing stocks but those that are moderately dwarfing. Trees on semi-dwarfing stocks such as Malling I, IV, and V grow rapidly at first, come into bearing two to four years earlier, and produce apples like those of the same varieties on seedling stocks.

[In Part II of this article, which will appear in the March issue, Dr. Shaw will describe various Malling stocks.—Editors.]

"HALF-MOON" DRAINAGE TERRACES

By PAUL STARK, JR.

IN MISSOURI over a period of years we do not require irrigation in orchards. Of course, we expect a drought every now and then, just like nearly all other agricultural communities. However, during the last 10 years we have had more than our share of dry growing seasons. In 1934 we had to haul water six miles in tanks to save the trees from certain death, so we started thinking about some way to relieve this situation in case we had to undergo another serious dry season. We wanted to save the trees at a minimum expense and also to keep enough water going into the fruit so that it would size up properly to make it salable. Our orchard was about 14 years old and it was too late to terrace or to plant on the contour so we did what we feel was the next best thing and built a series of what we call "half-moon" terraces.

Our orchard, all on hill land, has been in sod for several years. These "half-moon" terraces seemed to be especially adapted to hillside sod. The terraces are simple to make and the cost is surprisingly small. The only implements required to make these water catchers are a good team, a two-horse plow, and a driver with a good eye. "Half-moon" or crescent furrows are made on the uphill side of the trees with the deep sided part of the "half-moon" just under the droop of the branches. The furrows are thrown toward the trees which give more height to the lower side and more water holding capacity. The shallow ends of the crescent should point up the hill. The depth ranges from 14 to 16 inches and the width depends on the plow. It is sometimes advisable to follow along with another plow to clean out the furrows. The position of these "half-moons" will depend on the hill. They should be placed so any run-out should be at the ends instead of the middle.

Just as soon as the driver becomes accustomed to the proper position of the furrow, it is a relatively simple matter to make many in a day. When possible, the tip ends of the crescent should overlap so that the overflow of one will be caught by the next one down the hill.

These "half-moons" can be life-savers during droughts. They also will reduce erosion to a minimum during heavy downpours. One will hold from 75 to 150 gallons of water. During normal years, they may catch just enough extra of an essential rain to give better size. Besides water conservations, they also help to reduce erosion, often a serious factor in hillside plantings.

FEBRUARY, 1942



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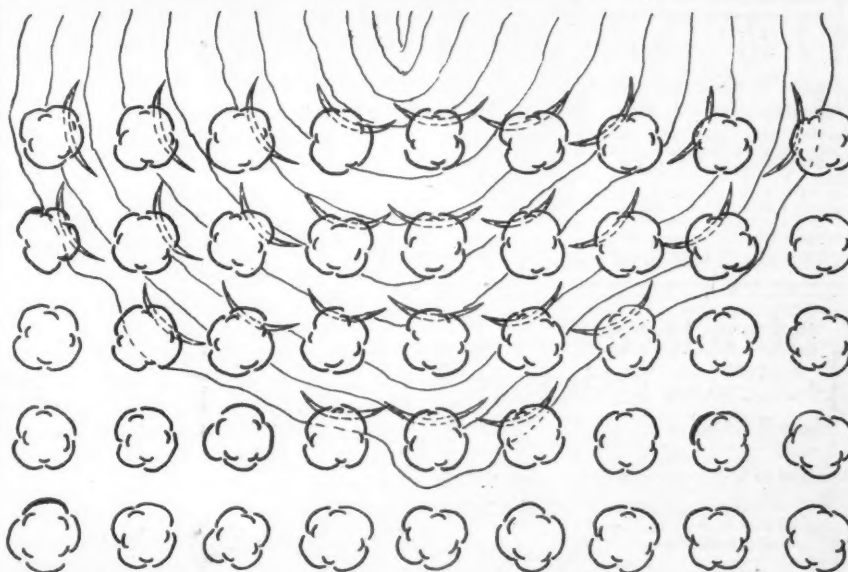
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The diagram above shows the position of the "half-moon" terraces in the hillside orchard. Water flowing down the hill is caught by the terraces and saved for the trees.

AMERICAN FRUIT GROWER

PAGE 21

10 SOUND REASONS FOR USING



Bordeaux mixtures which effectively control fungous diseases depend on the elimination of guesswork and haphazard methods of determining the amount of Copper Sulfate in the spray mixture. Nichols Triangle Brand "Instant" Copper Sulfate gives you these 10 advantages:

1. **ACCURATE CONTROL** . . . You know exactly how much copper sulfate is in your mixture.
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5. **EFFICIENCY** . . . 99% pure, 100% efficient.
6. **FASTER OPERATIONS** . . . Saves time, labor . . . mixes directly in the spray tank. Requires no agitation.
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8. **KNOWN QUALITY** . . . Standard for 50 years, it is the oldest and best known brand. Modern manufacturing methods assure never failing high quality in every package.
9. **MODERN PACKAGES** . . . Safeguard quality. At no extra cost, you get the best in waterproof bags and steel-hooped barrels.
10. **PRODUCED IN 3 LARGE PLANTS** . . . Your dealer can always supply you because of three strategically located plants.

ASK YOUR DEALER for Nichols Triangle Brand "Instant" Copper Sulfate today. He also carries **LARGE AND SMALL CRYSTAL** and **SUPER-FINE NICHOLS SULFATE** for **STANDARD BORDEAUX**, and **MONOHYDRATED** for copper lime dusts.

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VEGETABLE GARDENS and MORE POULTRY for VICTORY

SEEDS FOR VICTORY •

Seed collections in special packages, containing all the garden seeds needed to feed a family of five for a full year, are being sold by seed dealers throughout North Carolina. The packages contain about 26 pounds of garden seeds, which were selected by extension horticulturists of the State as best suited for this purpose.

They cost from \$5.35 to \$6.50 a package and are from \$2.65 to \$12 less than the same seeds would cost at regular prices.

INCREASED VITAMIN CONTENT •

U. S. D. A. workers have found that certain varieties of tomatoes contain from two to three times more vitamin C than other varieties. The high vitamin C content varieties are recommended for planting in farm vegetable gardens because of their increased nutritional value.

CHAMPION POTATO GROWER •

Colorado's 1941 4-H crops-club champion is Jim Oxley of Rio Grande County who produced 339 sacks of potatoes on 1.4 acres of land. He used seed from stock that had been certified in 1940, treated it for disease, planted whole seed at the rate of 1,570 pounds to the acre, and obtained a 98 per cent stand.

He rogued his potato field twice during the summer because roguing made it possible for him to use seed grown on the farm. By roguing he was assured of disease-free stock.

GARDEN SIZE •

A properly managed half acre garden should supply a family of five or six and yield vegetables having a market value of \$100 to \$150.

GARDEN PLANS •

Prime requisite for a successful garden is a well-drained, productive soil. However, by means of drainage, irrigation, manuring, and the right type of cultivation, any reasonably good soil can be made suitable for intensive vegetable production. A gentle slope toward the south or southeast is favorable for early crops. Where winds are likely to cause damage to crops, a location that is protected on the north by a wind-break is desirable. Do not locate the garden near trees as sunlight is necessary for good production. No amount of fertilizer, water, or care will replace sunshine. The presence of trees that do not shade the garden may be harmful as their roots may penetrate far into the garden and compete with garden crops.

AMERICAN FRUIT GROWER

CHECK EQUIPMENT •

Now is the time to inspect brooding equipment. Clean and disinfect brooder houses and run the brooding stove at least 24 hours before chicks arrive. Be sure to provide ample feeders and chick fountains. A good rule is to provide enough feeder space so at least two-thirds of the chicks can eat at one time. Hoppers should be designed so that the feed is easily reached.

KEEP EGGS CLEAN •

Clean eggs which have been washed with water deteriorate much more quickly in storage than do unwashed eggs because of the removal of the cuticle or bloom from the shell. However, at the University of Missouri, investigators found that eggs can be held in storage satisfactorily when washed with a one per cent lye solution. It takes about two level teaspoons of lye per gallon of water to wash 15 dozen eggs. Remember, though, that it is easier to keep eggs clean than to wash them.

COOLNESS ESSENTIAL •

Gather eggs at least twice a day and cool rapidly to retain quality. They should be stored at temperatures between 40 and 60 degrees Fahrenheit. A cool moist cellar is the best place to store eggs on most farms. If the cellar becomes dry, sprinkle the floor of the storage room to keep it moist. A tray of wet sand often will serve to keep the room from drying out.

CHICK BROODING •

Start chicks in late January, February, or March so they will produce during September, October, November, and December—months of best egg prices. Place chick orders at least six weeks before delivery is wanted. The demand for chicks will be strong so select chicks carefully. The best are the cheapest in the long run.

TWELVE PER CENT •

The Department of Agriculture has called for a 12 per cent increase in egg production. This does not necessarily mean a 12 per cent increase in hen population. Production can be stepped up by better feeding, care, and management. Feeding is particularly important not only for increased production but also for high quality.

WEIGHT •

The weight of chickens should be kept up or increased before they begin laying. Feed wet mash and extra grain, and use light to lengthen day, in order to make birds eat more.

FEBRUARY, 1942

WHEN IS AN ORCHARD OVERAGE?

(Continued from page 7)

third set of trees on the same site. He would have to charge more off from his investment by leaving trees in than by cutting them out. When trees are 40 years old, he thinks it is time to remove them. The profitable age of an orchard is from 10 to 35 years and after that profits are doubtful. He would plant 12 and one-half per cent of his acreage at a time, keep rotating, develop with his orchard, and avoid serious mistakes.

An Indiana grower would not keep peach trees over 15 years and he gives them a consistent annual pruning, "in case of doubt take out more." He thinks overproduction of peach pits has shortened the life of more peach orchards than anything else. The cost per bushel of Jonathan apples on his 40-year old trees is nearly double that from 20-year old ones although the fruit is good.

Other growers would not keep apple trees over 30 years and some even less. But a Yakima orchardist says that "as long as a person can get yield and quality from an orchard, he is not justified in removal, and in Yakima and Wenatchee the pulling which has become necessary has been made so either by poor location, poor varieties, poor management, or the grower himself rather than because of the age of the trees."



New Freedom for Growing Fruit



To produce...to produce more, and faster, and better... is the first duty of every American in the fight to preserve America's freedom. Today's knowledge of nutrition makes fruit more than ever the food of fighters. The second great duty is to prosper. Only as you prosper can you pay your part in the costs of defense.

To produce more with limited manpower... and with less expense... your best ally is fast, flexible, economical, easy-handling orchard power. Durability is doubly important in a tractor now when scarcity of materials may put off the possibility of replacement.

Among the ten new Case tractors, three are built for fruit growers—the low priced 1-2 plow "VO" shown above, the full 2-plow "SO," and the new 3-plow "DO." One of them fits your acreage and your methods. All are built to give you new freedom from delays and drudgery, to take less time and effort for fueling and lubrication.

If you have a Case tractor...or can get one...give it good care to keep its performance high and to make its long life still longer. Take full advantage of the service your Case dealer offers. He will do his best for you both in keeping your present equipment in first-class shape and in securing new machines you may need.

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In 1842 Jerome I. Case started to build machines to make farm work easier, farm earnings better, food more plentiful. In 1892, midway in the century, his firm built the world's first gas tractor. Out of this long experience comes the long life built into Case tractors, machines and implements. Write for books or folders on any that you need. J. I. Case Co., Dept. B-12, Racine, Wis., or nearest branch.

CASE

"MODERN FRUIT PRODUCTION"

An accurate textbook on orcharding and fruit culture by Dr. J. H. Gourley and Freeman S. Howlett.

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DENDROL DORMANT SPRAY OIL

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STANDARD APHID SPRAY OIL

... developed primarily for complete control of aphids... also highly effective against scale, red mite, and other insects overwintering on fruit trees.

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NEW FREIGHT CARS

CLASS I railroads in 1941 put 80,502 new freight cars in service, the Association of American Railroads have announced. This is an increase of 14,957 over 1940 and is the largest number installed since 1929.

STATE NEWS



Dr. E. C. Auchter

NEW YORK—Dr. E. C. Auchter, Chief, Bureau of Plant Industry, United States Department of Agriculture, spoke before the New York State Horticultural Society meeting at Rochester, January 13-16, on "What the New York State Fruit Grower May Expect in 1942." He predicted a profitable year ahead because of increased consumer purchasing power and because of large British purchases of fruit and fruit products.

Commenting on shortages, Dr. Auchter said that the grower must order immediately in order to get farm equipment, insecticides, and other supplies.

OKLAHOMA—An experimental "machinery bank" has been established by the Oklahoma Agriculture Defense Board to provide a reservoir of spare parts for farm equipment.

All idle farming equipment on Oklahoma's 32,000 farms will be centrally located, repaired, and made available to farmers as they need it.

OHIO—A plan has been devised by the United States Employment Service through which high school students and women in the highly industrialized and mining areas of Ohio, Michigan, and Kentucky will be enrolled to harvest and preserve fruits and vegetables during the war period.

MINNESOTA—Arnold Ulrich, Rochester, won the annual fruit judging contest for the second successive time this year at the Minnesota Horticultural Society's annual meeting. He had a perfect score of 270 points.

Preparations for the 1942 marketing season are being made by the Excelsior Fruit Growers Association under the leadership of John L. Westrum, newly elected President of the organization. At the annual meeting held on January 10, L. R. Eddy was re-elected Secretary, and I. O. Kragness was re-elected Treasurer. New directors elected are R. B. Faxon, Frank Workman, Excelsior; W. G. Huber, Hopkins. Strawberries, raspberries, and red currants are the principal crops marketed by the State.—J. D. WINTER, Sec'y, Mound.



R. A. Van Meter

MASSACHUSETTS—Officers elected last month at the Massachusetts Fruit Growers' Association are: R. A. Van Meter, President; Hamilton Lincoln, Brookfield, Donald Priest, Groton, and Walter Cheney, Brimfield, and Louis A. Webster, Blackstone, vice presidents; William R. Cole, Amherst, Secretary-Treasurer.—G. O. OLESON, Extension Editor, Amherst.

MARYLAND—Gleanings from the Maryland Horticulture Society's annual meeting: Don Matheson, North Carolina Department of Markets, urged close grower cooperation in a

NATIONAL PEACH COUNCIL WILL MEET

All Peach growers are interested in the meeting being held by the Peach Organizing Committee at the Hotel Charlotte, Charlotte, North Carolina, February 5-6, at which details for the formation of a National Peach Council will be worked out. Delegates at the meeting will select the officers and active management for the Council and also will determine policies and financing methods.

Peach growers decided to organize a National Peach Council, similar to the National Apple Institute, at a meeting in Richmond, Virginia, November 12.

National advertising effort to market from 60 to 70 million bushels of peaches during the coming 10-week-peach period; C. W. Hitz, University of Maryland, reported that pre-ripened Grimes and Golden Delicious apples artificially waxed kept well in storage and in market channels. Dr. F. P. Cullinan, United States Department of Agriculture, said peach and apple trees were not seriously affected by the past serious dry season.—A. F. VIERHILLER, Sec'y, College Park.

NEW YORK—Samuel Fraser, past Assistant-Secretary of the International Apple Association, has been elected Secretary of the organization to succeed R. G. Phillips who died last December. Mr. Fraser is a well-known fruit grower of Genesee.

PRICE RECORD SET FOR FIVE MICHIGAN APPLES

FIVE STEELE'S Red apples received what is believed to be the highest price ever paid for apples at the auction sale ending the 1941 meeting of the Michigan Horticultural Society. The sweepstakes plate of apples were grown by Russell Braman, President of the Grand Rapids East Belt Line Fruit Growers Association, who received \$10.20 for each apple or \$51 for the whole plate.

Braman produced the apples on trees about 25 years old and attributes his success to the use of non-caustic sulphur fungicide sprays having good sticking and long persisting qualities which would not be washed off by rain. He used an all-weather control program, dusting in the rain and spraying during clear weather.

On this year's crop, Braman harvested over 400 bushels per acre which packed 90 per cent U. S. No. 1 or better and 50 per cent U. S. Fancy. He is able to keep his Steele's Red trees in annual bearing by painstaking pruning, thinning, and use of non-injurious spray materials which do not harm the foliage.

APS

CONDUCTED IN THE
INTERESTS OF THE
AMERICAN POMOLOGICAL SOCIETY

AMERICAN POMOLOGICAL SOCIETY REPORTS ON WORK OF 1941

THE annual convention of the American Pomological Society held at Grand Rapids, Michigan, December 2-4, 1941, in joint session with the Michigan State Horticultural Society was most successful. Professor T. J. Talbert, Head of the Department of Horticulture, University of Missouri, Columbia, Missouri, was re-elected President of the American Pomological Society; Secretary H. L. Lantz and Treasurer H. C. C. Miles also were re-elected. During the course of the meeting, President Talbert very ably summarized the general activities and accomplishments of the APS for the year just passed. Among other things, President Talbert said:

"It is obvious that the fruit industry needs such a national exponent as the American Pomological Society, the organization that has meant much to the amateur and to the rank and file of producers. It deserves your support and assistance as members. The dues are very modest. Moreover, we should make sure that our state horticultural societies throughout the nation should cooperate through affiliating memberships. With this accomplished, we may be very certain that the American Pomological Society will continue to look after your fruit business—state, national and international. Your membership fee also will bring you a copy of 1941 "Proceedings" which alone is worth many times more than it costs to be a member.

"Briefly, what has the American Pomological Society done during the year of 1941 to serve the fruit growing interests of America? Among the first major activities was the planning and holding of two regional meetings at St. Joseph, Missouri; first, to consider ways and means of determining the extent and severity of injury to fruit trees in the Missouri Valley region caused by the blizzard and cold of November 11-15, 1940; and second, to consider the problem of aid and assistance to the growers through local, state and national agencies.

"An interstate committee was appointed representing the states of Iowa, Nebraska, Kansas, and Missouri. This committee spent several days in Washington, D. C., early last spring chiefly in the interest of the apple producers of the Missouri Valley Region. While the committee was in Washington, however, it was able to render additional services of great value to the apple industry and to horticulture in general by contacting national agencies regarding the nutritive value of fruits and vegetables in the diet and the need for extensive and general use among our army and navy forces particularly.

"The spray residue problem and the matter of holding hearings for the purpose of setting definite tolerances were given particular attention by contacting the individuals and agencies especially concerned. In the handling of all of these problems, the American Pomological Society, the National Apple Institute, and other organiza-

(Continued on page 26)

FEBRUARY, 1942



MAN-POWER is too precious these days to waste in unnecessary work. Each hour—each minute—must count. So let there be no delay in your farm work.

Cletrac Tru-Traction gets work done, when you want. You plow—plant—cultivate—spray—harvest—on time. In mud—muck—on steep hills, Tru-Traction gets you going through any field. You keep work on schedule 12 months of the year—now more important than ever.

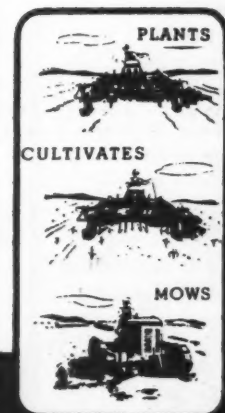
Tru-Traction is an exclusive feature that makes Cletrac Model HG a favorite tractor from Maine to California. Other features include 18 h.p. on the drawbar; 22 h.p. on the belt; and the choice of three widths—31" for orchards and narrow rows—42" for regular farm use—68" for regular use and crops of a general nature.

A full line of attached tools—planters, cultivators, weeders, mowers, sprayers, etc., is available for Cletrac HG. With equipment, Cletrac HG is a complete outfit. See your Cletrac dealer—learn how you can keep farming ahead of schedule with Cletrac HG and make more money per man-hour worked.

Present Cletrac owners can cooperate in more food production by keeping their Cletrac equipment in full working order through repair and replacement parts obtained now ahead of the busy season.

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AMERICAN FRUIT GROWER

PAGE 25



"I like the Victory pump's independent cylinders and straight cut gears,"

says master orchardist John Kuhn

MASTER orchardist John F. Kuhn, Sewell, New Jersey, was very careful when selecting a sprayer to protect his 110 acres of orchard. Mr. Kuhn was a mechanic before he became an orchardist—and knew what he wanted in a sprayer pump. He selected Iron Age Victory over four other pumps because he "likes the independent cylinders and straight cut gears."

In fact he's mighty pleased with the all around, trouble-free performance of his 600-gallon skid type Iron Age sprayer which he gives hard usage every week during spraying season. The high pressure spray of his 35-40 gallon pump fogs the highest tree tops thoroughly.

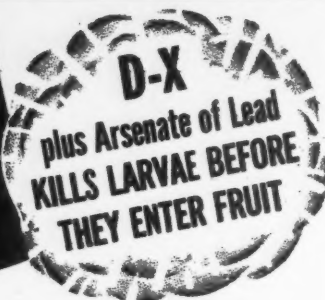
You can cut spraying costs with dependable, efficient Iron Age. All types of orchard models to choose from . . . for all crops, all acreages. Write for 1942 sprayer catalog.



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Put an end to half-way measures—and half-way results—in controlling codling moth. Get maximum kill—real control—the D-X way. D-X impregnates arsenate of lead with pyrethrum and rotenone staging a three-way attack: (1) it kills live moths by contact; (2) it prevents many moths from mating and laying eggs; (3) it coats fruit and foliage with a more powerful poison which kills the young larvae before they enter the fruit. D-X is your most effective weapon against codling moth—proved by results in the most heavily infested areas. Use 1 or 1½ pints of D-X with arsenate of lead in the cover sprays. D-X is also an economical spray for aphids, leaf hoppers, and many other insects. See your dealer now, or write for special codling moth folder.

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SPRAY with 26% COPPER FUNGICIDE

Tennessee Corporation

An insoluble copper fungicide. A most effective spray for apples and cherries. Absolutely safe. Controls diseases without injury.

ATLANTA, GEORGIA
LOCKLAND, OHIO

APS REPORTS

(Continued from page 25)

tions joined forces and cooperated fully in carrying forward the work at hand.

"The President of the Society has made two additional trips to Washington, D.C. One was to attend the National Nutrition Conference for Defense called by the President of the United States for May 26-28, 1941. The interests of the fruit growers of the Missouri Valley again were given thorough and painstaking attention. We were also on the job again regarding the problems connected with spray residue tolerances.

"Still another journey to Washington was made, October 20-24, 1941. This was for the purpose of attending and participating in the first major conference ever held on apple-use research. It was called by Dr. M. L. Wilson, Chairman of the special committee on apples in the United States Department of Agriculture. The purpose of the meeting was to outline and discuss needed research in the general field of nutrition for apples. While it was impossible to determine exactly what the cost of such research would be, it was estimated that we should think in terms of \$100,000 to \$150,000. Obviously nothing like this amount would be available directly from the apple industry, but it was agreed that the problem is of sufficient importance that the Federal Government would see that it is carried out. Steps were taken, therefore, to bring this about at the earliest possible date. Further study and work will be required, however, to attain our goal.

"Secretary Lantz has continued to keep our members informed regarding the work and accomplishments of the society by writing timely and interesting articles for the American Pomological Society page in the AMERICAN FRUIT GROWER magazine. He also has made determined efforts through circular letters and correspondence to stimulate additional interests and to increase the membership.

"Dr. W. A. Ruth, University of Illinois, Chairman of the Spray Residue Committee has been very active as usual. He is in close touch with the situation. He has made one trip to Washington and several others to certain districts in carrying out the work of his committee. He is ready for service at all times and the need for his services has arisen frequently this year.

"Dr. M. J. Dorsey, University of Illinois, Chairman of the Committee on Nomenclature, has continued his valuable and competent services through the year. The society recently was able to send him as a representative upon invitation to a meeting on nomenclature in New York City. The purpose was to promote the organization of an American Council on Plant Names.

"This brief account touches only a few of the outstanding problems upon which the society has worked this year. Those mentioned are sufficient to show that the American Pomological Society is an organization of action. Its committees are both practical and scientific and they are vitally interested in giving the highest and most efficient service on local, state, national, and international problems of fruit growers.

"Judging by the past, therefore, we may say, when an accounting of services to the horticultural industry of the nation is made, the American Pomological Society will not be found wanting."

N. L. Lantz
SECRETARY

NUT GROWERS NEWS

BUTTERNUTS HAVE HIGH FOOD VALUES AND HARDY RESISTANCE

DEAN R. L. WATTS, Pennsylvania State College, recently pointed out that little attention is given to the butternut. It is mentioned only rarely at meetings. There is little literature pertaining to it except in botanical works, and only one named selection is available from nurseries although many offer seedling trees for sale.

Dean Watts lists several reasons why the butternut deserves more attention from the amateur cultivator of nut trees. For those who were raised in the country where butternuts are native, the sentimental reason is, perhaps, the most important. It is associated with pleasant memories of nut-gathering expeditions on crisp autumn days, of Christmas candies and cakes which were deliciously filled with butternuts.

But there are reasons, other than sentimental ones, which place the butternut in comparative importance with other nuts. First, it surpasses all other nuts, even the pecan, in food value, having the highest per cent of protein and total calories.

The tree is the hardest of all our native nut-producing trees and it will survive where the black walnut is sure to be winterkilled. It is native throughout New Brunswick, the St. Lawrence Basin, and northward to Georgian Bay and the Ottawa River. The wood of the butternut tree is very beautiful. The conservationist should consider the butternut as an important source of food for squirrels for this species often produces a crop when other nut trees fail.

The market for butternut meats is never adequately supplied. In Vermont maple butternut candy is a common and most delicious product for which very high prices are received.

Dean Watts suggests that a more important place for the butternut be made in the nut tree planting program of this country. Because of the great variation in the cracking quality and the ease with which the kernels may be extracted from the shell, he suggests that the trees producing the finest nuts be sought out and propagated for testing and for eventual distribution.

The butternut tree grows naturally in rich moist soil near the banks of streams and on low rocky hills throughout its range. In the north it is one of the most abundant trees in the lowland forests. South of the Ohio River the tree usually is of small size and nowhere is it very common.

In the past a few improved varieties have received prizes in contests of the Northern Nut Growers' Association but it is unknown whether or not these varieties are being propagated. One variety, Thill, is being propagated on a small scale. The writer will attempt to refer those who wish cions of these varieties to the owners of the original trees and he, likewise, would like to receive any information from readers who have improved butternut trees.—GEORGE L. SLATE, Sec'y, Northern Nut Growers Assn., Geneva, New York.

FEBRUARY, 1942

READY FOR SPRING PLANTING

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Rogers' McINTOSH
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WESTHAUSER NURSERIES, Box 99, SAWYER, MICH.

BLUEBERRIES A PROFITABLE ORNAMENTAL

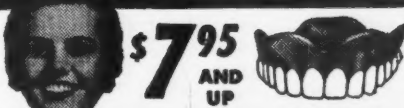
By the first to raise CULTIVATED BLUEBERRIES. The coming sensation. Very ornamental. Expensive white blossoms; leaves change from green to red; grows 4 ft. tall. Eat delicious jumbo sized berries with cream. Two to four bushes will supply average family with mouth-watering blueberry pies all season. Big money-maker for planters. Sell from 50c to 75c a quart. Fully described in our catalog of over 100 real bargains in plants, trees and shrubs. Write now.

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A hardy, vigorous grower. Shiny black berries with delicious rich sweet flavor. Bears next year after planting. Almost everbearing. Yields as much as 48 pints per plant. So new, so wonderful, we'll pay \$250 just for a name. You can order direct from ad and still be eligible to enter contest.

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FREE! America's Most Beautiful Nursery and Seed Book! Fully explains \$250.00 Contest to name this new berry. Also pictures and describes newest choicest flowers, fruits, roses, shrubs, vines, seeds, etc. First Quality Guaranteed. Stock at low prices from America's largest Direct-To-You Nurseries.

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Have plenty of fruit to eat and sell this year. Send for these fruit plants ready to bear first season. Blueberries, Boysenberries, strawberries, raspberries, apples, peaches. Full line of fruit & shade trees. NEW, rare varieties. FREE color catalog of shrubs, roses, evergreens, seeds & flowers. 25% discount on early orders. Money saving prices. Satisfaction guaranteed. WRITE today.

SOUTH MICHIGAN NURSERY
DEPT. A-2 NEW BUFFALO, MICHIGAN

KASUGA'S NEW 20TH CENTURY EVERBEARING STRAWBERRY

REVOLUTIONARY NEW EVERBEARER developed by Utah breeder. PHENOMENAL YIELDS—1000 13-pint cases first season; 3000 cases second year. HIGH QUALITY—brought 50c case more than other varieties—\$2.50 case on L. A. market. GOOD SHIPPER—1000 miles by Express, 500 miles by Truck. PROLIFIC PLANT MAKER—GOOD CANNER, PRESERVING, FREEZING BERRY. True 20th CENTURY for sale only by originator. Prices greatly reduced for 1942. Order early. Plant supply limited.

WOODROW KASUGA, R. D. 1, Box 428, SANDY, UTAH

SEEDS Alfalfa \$20.00; Clover \$6.50; Bluegrass \$3.50; Millet \$2.00; Sudan \$1.49; Caneseed \$1.55—all per bushel, bags included. Lawn mixture 75c per pound, samples FREE.

MEIER SEED SERVICE Wichita, Kansas

RODENT REPELLENT Protect your trees against rabbits and other rodents. Send for circular.

ACME GRAFTING COMPOUND Also Brush Wax and Hand Wax for same purpose. Send for price list. Above products endorsed by Michigan State College.

M. H. HUNT & SON, Box 7, LANSING, MICH.

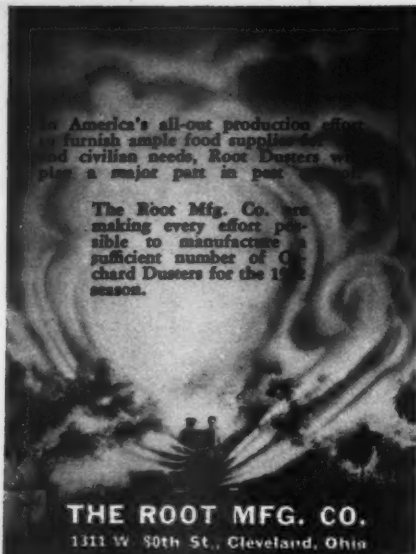
STRAWBERRIES

PAY Allen's 1942 Berry Book Describes Best early, medium, late and ever-bearing varieties. Tells how to grow big, luscious berries for home and market.

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The Root Mfg. Co. are making every effort possible to manufacture sufficient number of Orchard Dusters for the 1945 season.



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Give complete and satisfactory protection to sprayers. Rubberized suits also available.

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"TIFFANY" PRUNERS

Cut 1 1/4" limbs and work in narrow places. Sharp hook does not bruise.

Light, simple, and powerful. Tough alloy steel levers will not break or bend.

No More Handle Trouble

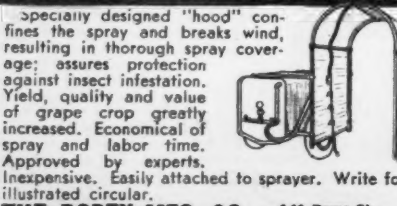
"TIFFANY" Hammer Forged Pruners

cut easy and stand the strain. Length 24 in., wt. 2 3/4 lbs. Price \$3.60 prepaid. Satisfaction guaranteed. Circular of Grafting Tools, Bark Scrapers, Pole Pruners, Briar Hooks and Hand Pruners. Dealers wanted.

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ASSORTED HEAVIES \$4.00—100 POSTPAID! NO Cripples! No culls! Live delivery guaranteed! Send money order for prompt shipment. **ATLAS CHICK CO., Dept. A., St. Louis, Mo.**

4 WEEKS GUARANTEE—IS CUSTOMER'S PROTECTION. They report 95 to 100% raised to maturity, 75 to 95% production. That's 60 to 100 extra eggs per hen. Extra profits with same feed costs. **BOCKENSTETTE'S, R 1 G, Sabetha, Kansas.**

WE BELIEVE EVERY FARMER AND POULTRYMAN can do his part by giving Uncle Sam the 20% increase asked for in eggs and poultry. Here are our low prices to help you get started: Barred, White, Buff Rocks, Wyandottes, Orpingtons. Reds \$5.00-100; Pullets \$10.00; Cockerels \$3.75. Minorcas and Leghorns \$3.25-100; Pullets \$14.50; Cockerels \$4.50. Heavy Mixed \$7.00; Assorted \$6.50. All Pullets \$2.00 per 100 higher for delivery after March 10th. Place orders now to be sure of prompt delivery. **CARNEY HATCHERY, Box 42, Shelbyville, Indiana.**

I CAN GIVE YOU PROMPT DELIVERY ON CHICKS at these prices if you hurry and place your order now. English White, Brown, Buff, Leghorns, Anconas \$3.25-100; pullets \$13.95; Cockerels \$4.45; Barred, White, Buff Rocks, Reds, White Wyandottes, Buff Orpingtons \$8.25-100; Pullets \$9.45; Cockerels \$9.45. All pullets \$2.00 per 100 higher for delivery after March 15th. Heavy Mixed \$5.95; Seconds \$4.45. We pay postage, guarantee live delivery. Write for catalog. Run orders for positive shipping dates. 25c per 100 discount for cash with order. **DAVIS POULTRY FARM, Route 3, Ramsey, Indiana.**

HINKLE STRAIN-BLENDED CHICKS WILL GIVE you that extra vitality so necessary in producing the 20% increase in eggs and poultry wanted by the government. Place orders now at these low prices, they will probably be higher later. Barred, Buff, White Rocks, Reds, Wyandottes, Orpingtons \$7.95-100; Pullets \$9.45; Cockerels \$8.95. Big English White Leghorns \$3.25-100; Pullets \$14.50; Cockerels \$3.95; Heavy Mixed \$6.50; Assorted \$5.50. All pullets \$2.00 per 100 higher for delivery after March 10th. We pay postage—Guarantee live delivery. **GREENSBURG HATCHERY, Box 50, Greensburg, Indiana.**

PAPE MAMMOTH MINORCA STURDY QUICK GROWING chicks. Americas distinguished producers larger premium white eggs. Literature free. **MINORCA FARM, Chubbuck, Indiana.**

MAKE MORE MONEY WITH POULTRY. READ ONLY magazine operating experimental farm for your benefit. Valuable ideas. Five years \$1.00, one year, 25c. Agents wanted. **POULTRY TRIBUNE, Dept. C-24, Mount Morris, Illinois.**

JERSEY GIANTS—SUPERFINE CHICKS. WHITE Giants—Black Giants—Buff Minorcas. Other breeds. Literature. **THOMAS GIANT FARM, Pleasanton, Kansas.**

5% DISCOUNT ON EARLY ORDERS. 6 LEADING hybrids. White or Brown egg laying strains as hatched or sexed. **WAYNE HATCHERY, Wayne City, Illinois.**

BEEES

BEEES—GOOD SIDE LINE. PLEASURE, PROFIT Send \$1.00 for book "First Lessons in Beekeeping" (new edition), and one year's subscription. Catalog free. **AMERICAN BEE JOURNAL, Box G, Hamilton, Illinois.**

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150 ACRES OF LAND IN ROSS COUNTY, OHIO, NEAR Summit Hill 70 acres in standard varieties of apples and a few acres in peaches. If interested in buying, renting or managing this orchard, write Dr. E. R. SPENCER, Lebanon, Illinois.

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FORTY ACRES OF ALL KINDS OF FRUIT. ALL bearing. **MRS. EVA BASFORD, Bellevue, Ohio.**
NURSERY AND BUSINESS. MEDIUM SIZED NURSERY located in fine dairy farming section of N. E. Iowa, good buildings and growing stock, very best of references in every way. Arthritis sufferer. Box 26, **AMERICAN FRUIT GROWER.**

28 ACRES: FIVE ACRES 17-YEAR-OLD GOLDEN Delicious, two acres Staymared and Starking, seven years. Some peaches. \$2500. **ERNEST FARIS, Harrodsburg, Indiana.**

BEAN DUPLEX SPRAYER 200 GALLON TANK, 3 cylinder pump, Bean engine, Mount Gilead Hydraulic cider press. Exhibition tent 30 x 40 **KEENEY'S ORCHARD, Route 3, Des Moines, Iowa.**

TRI-COUNTY FRUIT FARMS NEAR ELYSBURG, Northumberland County, Pa., in whole or any part of same. Will help finance. **THE MINERS' & LABORERS' BUILDING & LOAN ASSOCIATION, 35 East Third St., Mt. Carmel, Pa.**

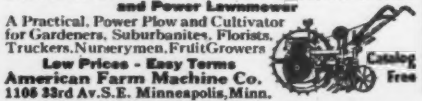
APPLE TREES, SEEDLINGS, ROOT GRAFTS; CHINESE blight resisting chestnut trees. **VIRGINEA TREE FARMS, Woodlawn, Virginia.**

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AMERICAN FRUIT GROWER

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HIBERNAL AND VIRGINIA ON HARDEST OF Northern rootstocks for topworking. Red Lake Currant, Paradise Asparagus, MacDonald Rhubarb, new introduction of Minnesota Experiment Station. Free catalog on request. **ANDREWS NURSERY, Fairbault, Minnesota.**

MAKE MONEY GROWING FRUIT. PLANT THIS Spring. Quick crops, big profits from small space. Leading new and old reliable varieties of Strawberries, Raspberries, Blackberries, Asparagus, Rhubarb, Grapes, Fruit trees, Roses, Shrubs, Flowers. Also NEW THORNLESS Boysenberries, Blueberries. Discounts for early orders—53 years in business. Write for big FREE catalog now! **O. A. D. BALDWIN NURSERY, Box 80, Bridgman, Michigan.**

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1942 SHOULD BE POULTRY RAISERS BANNER year. Help Defense—Profit yourself—raise poultry the "American Way." Read **AMERICAN POULTRY JOURNAL, 549 S. Clark, Chicago. 5 years \$1.00, 6 months, 10c.**

PEAFOWL. PHEASANTS. BANTAMS. WATERFOWL. thirty varieties Pigeons. **JOHN HASS, Bettendorf, Iowa.**

FANCY POULTRY: 100 VARIETIES POULTRY, BANTAMS. Catalogue, 3c. **F. C. WILBERT, Grand Rapids, Michigan.**

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AROMA, YELLOW FREE BLAKEMORE KLONDYKE missionary, \$2.50 per 1000. Gem Everbearing, \$1.50 per 1000. **JOHN LIGHTFOOT, Birchwood, Tenn.**

STRAWBERRY PLANTS, STATE INSPECTED, Yellow free strain Blakemores, Klondykes, Klondykes and Missionaries. Write for prices. **R. R. MCUMBER, Greenfield, Tenn.**

CERTIFIED STRAWBERRY PLANTS: Yellow RESISTANT Blakemore, 1,000—\$1.90; 100,000 lots, \$1.75; Klondyke, \$2.90 per thousand. **C. H. ROCHELLE, Kenton, Tenn.**

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COMMERCIAL TURKEY RAISING OFFERS BIG CASH profits. Learn successful methods brooding, growing, marketing. Read America's leading turkey magazine. One year \$1.00; five months 50c. **TURKEY WORLD, Desk 226, Mount Morris, Illinois.**

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SONGWRITERS! POEMS WANTED. FIVE STAR MUSIC MASTERS, 716 Beacon Building, Boston, Mass.

WANTED TO HEAR FROM OWNER OF FARM FOR sale for spring delivery. **WM. HAILEY, Baldwin, Wisc.**

AGENTS: STRANGE CHEMICAL SPONGE CLEANS Wallpaper like magic. Banishes housecleaning drudgery. Sensational seller. Samples sent on trial. Rush name. **KRISTEE, 140, Akron, Ohio.**

CLOTHING SALESMEN: SELL ONLY 5 ALL WOOL tailor made suits or top-coats to get a free bonus suit. 10 pants orders will also entitle you to a free suit. Write for samples. **RIALTO TAILORING CO., Gillespie, Illinois.**

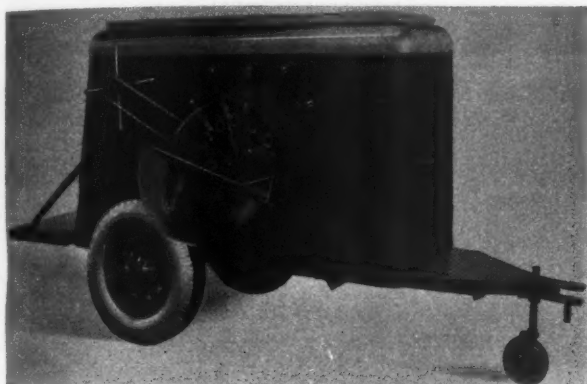
NEW

- DOUBLE-PURPOSE HEATER
- TORNADOES
- 224-YEAR-OLD FARM
- TRACTOR HISPEED RAKE

DOUBLE-PURPOSE HEATER •

A new means of preventing frost damage has been developed by the Orient Corporation in a combination of a series of gas burners and powerful fan which heat and carry the air out into the orchard, thereby raising temperatures during frost spells.

The equipment is mounted on small trailers so that it can be drawn by means of a



tractor through the orchard. Bottled gas, such as propane and butane, is used as fuel. The suction and power of the fan circulate the air as it is warmed by the open flame burners. The Orient is adaptable to different numbers and sizes of burners so that any reasonable increase in temperature may be accomplished.

Often the ordinary type of orchard heater does not throw off its heat in the proper direction but raises upward instead of circulating through the trees. In this case, the Orient can be used to circulate that warm air through the means of its powerful fan. This circulates warm air that otherwise would be stagnant and unbeneficial to the orchard.

In addition to heating the orchard, this unit can be used as a power duster. The dust material is delivered through the nozzles on the sides of the equipment and carried by the fan so that complete coverage as far as 200 feet with some dusts, plus a drift of 1,000 feet when natural windage is low, are made possible.

TORNADOES •

Tornadoes are one of the fiercest forces that can strike at an orchard or at crops and there are about 100 tornadoes annually in the United States. Many of these storms visit sections which never have been touched before. No section of the country is definitely safe from them.

An insurance company in Ohio describes a tornado as two streams of air, rushing past each other, which start to spin and form a tornado cone which passes in less than a minute, leaving ruin in its path.

The capacities of such a storm border on the fantastical, and it truly has been said that a tornado is capable of driving a stick through a six-foot-wall—a straw through a telegraph pole.

FEBRUARY, 1942

224-YEAR-OLD FARM •

Volume One, Number One, edition of Farquhar Iron Age FARM NEWS tells the story of the Concklin fruit farm in Pomona, Rockland County, New York.

It was started in 1717 by an ancestor of Gordon Concklin who operates the farm today with his two sons. They have a successful roadside market where they sell almost 100 per cent of their fruit. Their 100 acres of orchard crops, 55 of which are in apples and peaches, are cultivated with Iron Age machinery.

A recent acquisition to this farm, that was started during the French and Indian Wars, is a large storage shed for apples.

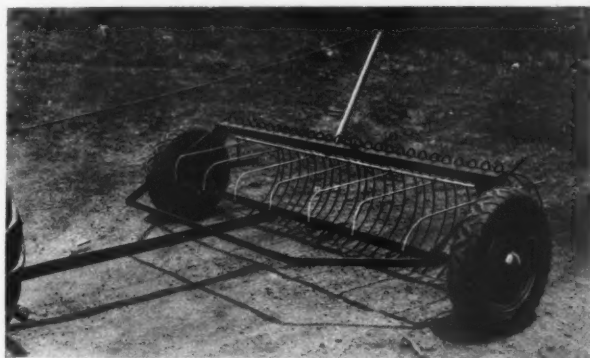
TRACTOR HISPEED RAKE •

Many growers are using on their tractors rakes which were built originally for horses.

Now the Field Force Manufacturing Company has on the market a rake which was built specifically for operation with a tractor. It has many advantages over the old type of rake.

Its most important feature, especially during the present time when labor is short, is speed. Operating on a hillside, or wherever a tractor is capable of operating, it saves hours of hard work.

The rake head pivots easily with a pull of rope by the tractor driver and, as the rakings are dumped, spring coils throw the head back into a raking position. It is a fine machine for orchard work as well as for raking up hay and for cleaning the fields. It is in the operation of picking up prunings that the rake is of most value to



the fruit grower who often has to spend hours cleaning the orchard after his pruning is finished.

The HiSpeed Tractor Rake is of modern construction, built in three different sizes, and has an operating speed of 15 miles per hour.

BOOKLETS •

B. G. Pratt's new SPRAY HANDBOOK includes control measures against a multitude of insects which pester apple, cherry, peach, and pear trees. Pages four and five describe the insecticides used.

AMERICAN FRUIT GROWER

UNITED'S B. B. (BLOCK BAKED) CORKBOARD INSULATION



Assures maximum insulation efficiency at minimum cost. Moisture-resistant, compact, light weight, sanitary, structurally strong, flexible.

Write for particulars.

UNITED
CORK COMPANIES
WEST KEARNY, N. J.

Literature
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AGICIDE

TRADE MARK
AGRICULTURAL INSECTICIDE

CREAM OF AGICIDE

is a Unique Rotenone Liquid Base, rich in insecticidal value, for forming a spray that will control most insects which attack orchards and garden crops; yet it is safe to fruits, flowers and foliage, and will not endanger human beings.

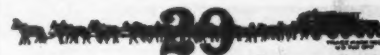
Use it as a bath or spray for control of lice, fleas, and many kinds of ticks on cattle, goats, and poultry.

For name of nearest distributor of
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AGICIDE LABORATORIES

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BORAX—BORIC ACID

Borax or Boric Acid—for the effective control of BORON DEFICIENCY DISORDERS in apple orchards.

WRITE US FOR PRICES
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FIRST STEPS IN FRUIT GROWING

KNOW YOUR INSECT ENEMIES

APPLE BLIGHT SPRAY

ACCORDING to H. R. Niswonger, Pennsylvania State College, B. G. Leatherman, J. S. Sain, and V. O. Sipes, all Pennsylvania growers, secured 50 to 75 per cent control of apple blight by spraying their trees at the blooming period with Bordeaux mixture. He said these men have been applying the bloom spray for the past eight years and have secured satisfactory control of blight during these years. They also cut out the blighted twigs at the dormant season.

Niswonger recommends two pounds of bluestone and six pounds of hydrated lime to 100 gallons of water. Secret of this method of controlling apple blight disease is to time the spray correctly. Since all blossom buds do not open at the same time, more than one spray may be necessary. Pruning blighted twigs and branches and rubbing off blighted fruit spurs should not be neglected for efficient blight control.

Container Carry-Over

CONTAINERS left scattered about the orchard make hibernating places for the codling moth with a resultant larger carry-over of worms. All containers not only should be gathered up but also reconditioned as there is a shortage of such supplies.

Wrappings Protect Trees

TO PREVENT attacks of the flat-headed apple tree borers on newly established trees wrap the trunks so they will be protected from May through August for the first two or three years. Tar-lined paper is ideal although several thicknesses of newspaper, or 40-pound wrapping paper is satisfactory. The wrapping should be made spirally and held in place by twine wrapped spirally in the opposite direction from the paper wrapping.

Spray for Corky Spot

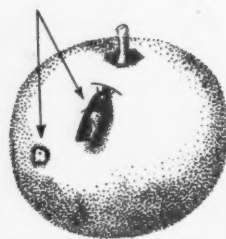
IF TREES are suffering from internal browning or corky spot, spray in early summer with a solution of borax in water. Use two pounds in every 100 gallons of water and apply before the last of June. Applying borax to the soil is a cheaper method but is not satisfactory during dry periods. Corky spot will be found in mature fruits which contain brown dry spots and which drop earlier than usual.

Required Reading

"THE Oriental Fruit Moth in Missouri," Bul. 424, 1941, by Curtis W. Wingo, College of Agriculture, University of Missouri, Columbia.

"Rabbit Parasites and Diseases," Farmers' Bul. 1568, 1935, by Benjamin Schwartz and W. B. Shook, U.S.D.A., Washington, D.C.

"Questions and Answers on Fruit Culture," Cir. 35, 1941, by Niels E. Hansen, Agricultural Experiment Station, South Dakota State College, Brookings, S.D.



CODLING MOTH—Iridescent bronze patches on the tip of the forewings distinguish adult moths. The apple shows a typical worm sting.



Codling moth larvae overwinter in cocoons on trunks of trees shown above at left. Drawing at right shows how worms eat the fruit.



ORIENTAL FRUIT MOTHS—The adults are gray with brownish markings on the wings. They are smaller than the codling moths.



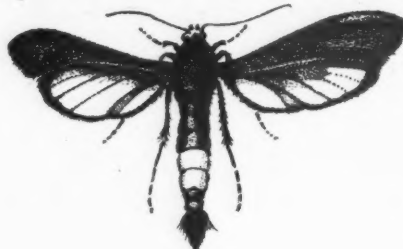
Typical injury to peach twigs by larvae of the Oriental fruit moth. The tender twigs are killed by the boring worms as shown above.



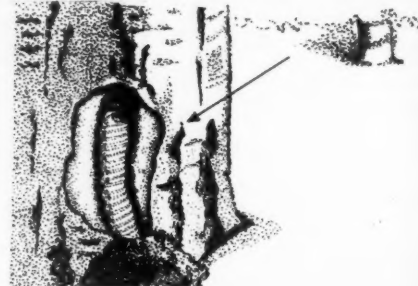
PLUM CURCULIO—The adult is a snout beetle about 1/4 inch long with light colored patches on its back and 4 typical humps.



The Curculio makes characteristic crescent-shaped punctures when laying its eggs in apple. It overwinters under fallen leaves.



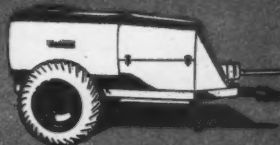
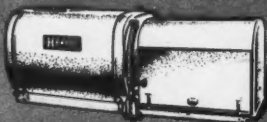
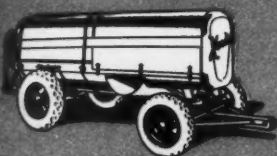
PEACH BORER—The female adult has an orange band on the abdomen, transparent hind wings and may be often mistaken for a wasp.



Peach borer larva damages by boring into the trunk of the tree. It may girdle and shorten the life of the tree, or sometimes kill it.

INSECT identification is not easy. It is only by painstaking care and long experience that insects can be located, captured, and identified. When hunting for bugs, it is wise to carry a small magnifying glass and a sharp knife. These will be indispensable in helping to locate worms inside an apple such as the codling moth larvae, or the larvae of the Oriental fruit moth which bore in young, succulent twigs.

Keep in close touch with your State Experiment Station and, when in doubt, call in your Extension Horticulturist or your County Agent. They will often be able to start you on the right track. To locate an insect it is necessary to know at what time of year it is going through its most readily identified stage. This information, which varies for different localities, can best be obtained at your Experiment Station.



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